

# SD Times

SOFTWARE DEVELOPMENT

The Industry Newspaper for Software Development Managers

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## SUN BOOSTS SOA STRATEGY WITH SEEBEYOND ACQUISITION

BY EDWARD J. CORREIA

Sun Microsystems bolstered its future SOA tool selection with the announcement late last month of plans to acquire See-Beyond Technology Corp., a 15-year-old enterprise integration tools vendor, for about US\$387 million in cash, or about \$4.25 per share. The acquisition is expected to close this fall pending shareholder approval. See-Beyond's revenue for the past 12 months was \$167 million.

"This acquisition strengthens our software portfolio and opens new growth and partnering opportunities worldwide," said Sun chairman and CEO Scott McNealy in a statement. See-Beyond customers reportedly numbered around 2,000, including

Blue Cross Blue Shield of Massachusetts, DuPont, Florida Power & Light, Fujitsu, General Motors, Halliburton, Lockheed

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Scott McNealy and Duke the mascot celebrate the 10th birthday of JavaOne. Sun marked the occasion by buying integration software vendor SeeBeyond.



SD Times Photo: Alan Zeichick

## Jack Kilby, Integrated Circuit Inventor, Dies

BY YVONNE L. LEE

Jack St. Clair Kilby, without whose work pocket calculators would require pockets the size of briefcases, died June 20 of non-Hodgkin's lymphoma. He was 81.

Kilby invented the integrated circuit in 1958 as a new employee at Texas Instruments in Dallas. He was working on the problem of trying to increase the performance of computers in light of the large number of components that at that time had to be soldered together. Transistors were used widely in

the electronic devices of the time, but there was a limit to how small each transistor could be made, since after it was made it had to be connected to wires and other electronics. The transistors were already at the limit of what steady hands and tiny tweezers could handle.

On Sept. 12, 1958, he demonstrated the first electronic circuit in which all of the components, both active and passive, were fabricated in a single piece



Jack Kilby's electronic circuits power a wide array of devices available today.

## Sun Embraces Open Source, IBM Loosely Embraces Sun

BY ALAN ZEICHICK

SAN FRANCISCO —

The banner news from the 10th annual JavaOne conference revolved around Sun Microsystems' decision to release more parts of its Java stack as open-source software, and a renewed commitment by IBM to support Java

MORE ON  
JAVAONE  
PAGE 8

and port its applications to Sun's platforms.

Also at the conference, which drew an estimated 15,000 attendees, Sun announced that the Java Community Process had finalized JSR 208, Java Business Integration, and the company

► continued on page 25

## WORKSPACE IS MODEL OF SOA DEVELOPMENT

Sybase to bring RAD, modeling, mobile features to Eclipse

BY EDWARD J. CORREIA

It's everything but the kitchen sink. Sybase late last month at JavaOne unveiled WorkSpace, a development environment that it says will combine modeling, rapid application development, data tooling, Web services creation and mobile deployment capabilities in a commercial Eclipse implementation. Scheduled for September release, the tool is intended to build Java and .NET applications to run on a service-oriented architecture; pricing was not disclosed.

"Everybody's talking about SOA," said Loren Corbridge,

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## SPECIAL REPORT

For Linux,  
The End-to-End  
Is Near .....30





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### Keynotes Announced!

Mike Milinkovich is the executive director of the Eclipse Foundation. In the past, he has held key management positions with Oracle, WebGain, The Object People, and Object Technology International Inc. (which subsequently became a wholly owned subsidiary of IBM), assuming responsibility for development, product management, marketing, strategic planning, finance and business development.



Mike Milinkovich



Dale Fuller

Dale Fuller is president and CEO of Borland Software Corp. Fuller joined Borland in April 1997 with more than 20 years of experience in general management, marketing and business development in the technology industry.

Before being named president and chief executive officer, Fuller was president and CEO of WhoWhere? Inc., one of the leading community sites on the Internet. He was also a vice president and general manager at Apple.

Kent Beck is the founder and director of Three Rivers Institute and an expert in agile methodologies. His career has combined the practice of software development with reflection, innovation and communication. His contributions include patterns for software, the rediscovery of test-first programming, the xUnit family of developer testing tools and eXtreme Programming. Beck is the author/co-author of "eXtreme Programming eXplained: Embrace Change" (second edition), "Contributing to Eclipse," "Test-Driven Development: By Example," and "Planning eXtreme Programming."



Kent Beck

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# Oracle Puts on a JavaServer Face

Company to lead Eclipse JSF tooling project, give away JDeveloper IDE

BY YVONNE L. LEE

Oracle at the JavaOne conference detailed a three-pronged effort to promote the JavaServer Faces framework, which is designed to make it possible to quickly build Web applications by assembling user interface components in a page, connecting those components to a data source, and tying client-generated events to server-side event handlers.

Those efforts include giving away its JDeveloper 10g integrated development environment, leading a JSF tooling development within the Eclipse community, and submitting software to the Apache MyFaces project.

Oracle uses JSF in its JDeveloper integrated development environment. JSF uses a model-view-controller approach that separates an application's data model, user interface and control logic into three distinct components so that modifications to the visual elements can be made with minimal impact to the data model.

Giving away its application development environment is a way to try to attract new developers to its IDE, said Rick Schultz, vice president of Oracle's Fusion middleware.

The move, though, could be a dangerous one, said Gary Barnett, senior analyst at the research firm Ovum. "When-

ever you give away your tools for free, you're telling the market something very clear about how much you think they're worth," he said.

However, the move would free Oracle to concentrate on its other products, such as its database, middleware and applications, Barnett said. "Then they can focus on a smaller number of the battles, and as a consequence, improve their chances of winning them," he said.

"They want to pull people into the Fusion platform, and they think this is the best way," said Shawn Willett, principal analyst at Current Analysis.

Willett said that giving away JDeveloper and working on the

open-source projects follow an industry trend of releasing parts of product suites to open source. "Everyone's trying to maneuver," he said. "They're trying to get the open-source supporters into their product suites by outsourcing bits and pieces, or in some cases big pieces."

Oracle does not plan to release an open-source version of JDeveloper or to make it an Eclipse plug-in, said Schultz.

"We're trying to broaden Oracle's reach in the Java developer community," said Schultz, explaining why the company was participating in an Eclipse tooling effort when its own development product does not run

under the Eclipse framework.

"We want Eclipse developers also to work with the key SOA technologies," he said. Schultz characterized Eclipse as a lightweight IDE from which developers could choose plug-ins, but said that the self-contained JDeveloper also includes integrated UML modeling and BPEL process management.

In addition, Oracle will contribute elements of its Application Development Framework to the Apache Foundation's MyFaces project, which is an effort to build a free open-source implementation of JSF-compliant components and a runtime. ■

## Sybase RAD for Eclipse

◀ continued from page 1

senior product manager at Sybase. "We wanted to deliver something that was targeted at building a service-oriented architecture." But, Corbridge said, unlike SOA tools that are focused on building applications, "WorkSpace is focused on services, on Java developers and on heterogeneous environments."

WorkSpace builds on Unwired Orchestrator, the company's US\$13,500 per-processor middleware for Linux, Unix and Windows released in October that includes a set of Eclipse plug-ins for integrating browser-based front ends with back-end enterprise applications.

Perhaps most notable is the modeling capabilities WorkSpace brings to Eclipse. "Everything that's in PowerDesigner is now integrated into Eclipse in this single tool," Corbridge said, referring to the company's UML, BPM and data modeling tool, which will still be offered separately, as will its PowerBuilder 4GL RAD. "We think modeling is going to be more and more critical. We're trying to get modeling more closely integrated with what people think of as traditional development, not just for designers or analysts."

To that end, she said the modeling capabilities will include round-trip and reverse engineering, and automated

script and code generation. "You can have the models in a single tool set. So as you're working, you can see all the pieces at any time, [and] no matter what perspective you're in," changes propagate to all modules.

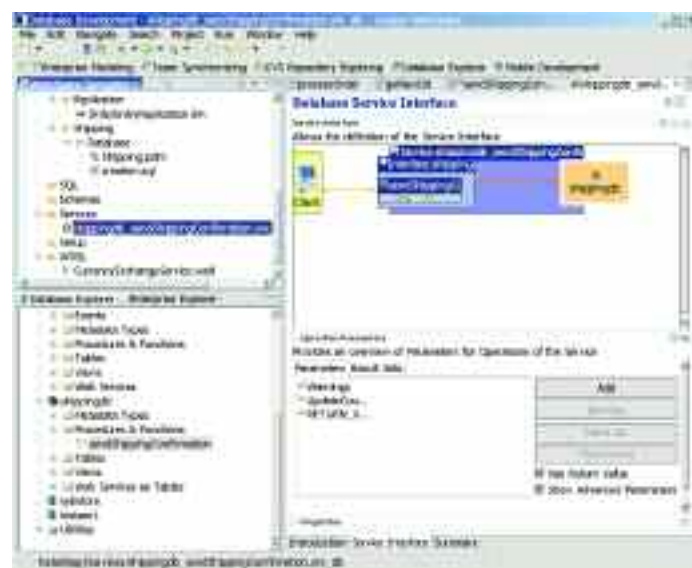
The mobile component is a variant of Unwired Accelerator, Sybase's \$8,700-per-processor middleware for Linux, Unix and Windows that feeds data to connected and disconnected clients that also includes tools for building interfaces between mobile devices and back-end systems.

Corbridge said WorkSpace also will include technology being developed in Eclipse's Data Tools Platform project,

which Sybase leads. Capabilities include graphical SQL statement development, and editing and debugging of stored procedures, triggers and database events.

WorkSpace also will leverage the Eclipse community, she said, for its work on Web Tools, which bring graphical tools for Web services creation and assembly, message transformation and orchestration of services into composite applications and automated processes.

Corbridge was clear about the company's intention to continue to develop and market PowerDesigner and PowerBuilder, and asserted that they actually complement Work-



WorkSpace includes a GUI-based tool for creating database service interfaces.

Space, which she said will be priced somewhere in between. "If developers have business logic in components built with

PowerBuilder, those can be easily exposed as Web services and pulled into processes through WorkSpace." ■

## OSDL Realigns After Fifth of Workforce Laid Off

BY EDWARD J. CORREIA

For much of the past year, it seemed like barely a week went by that the Open Source Development Labs didn't announce another company or two joining its effort, or that it had attracted yet another high-profile Linux developer or executive.

Indeed, according to Bill Weinberg, OSDL's open-source architecture specialist, the self-proclaimed center of gravity for Linux doubled its membership in the past year.

But in May the organization laid off nine employees—

roughly 20 percent of its workforce, leading to speculation that it might be headed for tough times.

Not so, said Weinberg, explaining the layoffs as simply a realignment of resources. "It wasn't devastating; it was an adjustment based on financial and programmatic imperatives from our board of directors. We did a lot of hiring last year, and we did a lot of [new member] recruiting. But we didn't enhance our revenues enough to cover the hiring." He said the recruiting was "based more on

initiative need and focus, rather than on the basis of membership dollars," which are the organization's sole source of revenue. "When we reviewed our year, our board instructed us to reallocate our resources and budgets. Most of our expenditures are for head count, so that was where we started."

Backing up Weinberg's claims was Chris Lanfear, embedded software group manager at Venture Development, a technology industry researcher. "I think the OSDL is pretty solvent right now. I am

not sure they have been as successful as they might have liked in moving members to higher levels of sponsorship, but my understanding is that income is adequate."

Both Lanfear and Weinberg also indicated that OSDL has increased its focus on developing regions outside the United States. "We're investing more in China, India and Europe, and those investments have to be funded," said Weinberg, adding that among OSDL's new offices is one in China, which houses one full-time employee. ■



# Iona to Begin Drilling Into Artix

Open-source project will mine the low-end Java ESB market

BY EDWARD J. CORREIA

Seeking to ride the open-source wave, Iona Technologies late last month revealed its intention to open parts of Artix, its enter-

prise service bus middleware, to create an open-source Java ESB project that the company will position as an entry in the low-end middleware market.

"We want to go with the flow instead of try to pile up the sandbags against the flood tide of open source," said Eric Newcomer, CTO of Iona. "It became

apparent to us that there was a need for a commodity product in the ESB market," he said. "Previously we hadn't been supplying anything in what we view

as the commodity space." Artix, its high-end product, is for C++, Java, CORBA and PL/I, and costs on average about US\$10,000 per server processor, he said.

Unlike Artix, the new project, called Celtix, will support Java only. According to Newcomer, its capabilities will include service enablement through WSDL files, support for SOAP and XML payloads, bindings for Java and Plain Old Java Objects (POJO), and support for the Java Business Integration (JBI) specification (JSR 208). It also will include Eclipse-based administration and configuration tools and basic authentication-level security.

Also unlike Artix, which Newcomer said supports proprietary transports and formats used in such systems as MQSeries, IIOS and TIBCO, Celtix will support HTTP, WS-Reliable Messaging and JMS. "So you could say that the higher-end product is a better fit for legacy environments, and the Java-based product is better for new projects created in Java," he said.

To help it shepherd the project, Iona has partnered with open-source middleware developer ObjectWeb, which Newcomer said will host the codebase and development community. ObjectWeb counts among its projects the Jonas J2EE application server and Transaction project. Iona will begin delivering code over the next six months, he said, with the goal of a release version before year's end.

Iona in March was set to announce a similar partnership with JBoss, but Newcomer said the two companies had artistic differences. "We had to break up the band. But we really weren't able to see eye-to-eye on how to approach the project and how [it] should be done." He refused to give further details. ■



It became clear there was a need for a commodity product in the ESB space, says Iona's Newcomer.

## "We deeply regret this incident"

Kevin Kessinger, EVP, Citigroup June 2005



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# Key Research Efforts Recognized

IBM names Fellows; Microsoft awards grant money to promising young Ph.D.'s

BY JENNIFER DEJONG

They aren't always recognized, but research efforts are central to how software companies build better products.

IBM and Microsoft shined their respective spotlights on two such initiatives earlier this year. IBM bestowed its top technical "IBM Fellow" honor on five employees it claims are "among the best and brightest innovators in the world," said Sharon Nunes, an IBM vice president of technology.

Microsoft, meanwhile, awarded five US\$200,000 grants to young professors who demonstrated "outstanding new talent" and potential for "high-impact, innovative research," said Tom Healy, Microsoft's lead program manager for university relations. Recipients were within one to three years of their first faculty appoint-

## FAST FACTS ON IBM, MICROSOFT RESEARCH EFFORTS

### THE IBM FELLOWS PROGRAM

**Established:** 1962, by IBM's founder, Thomas J. Watson Jr.

**Purpose:** To promote creativity among IBM's top technical employees.

**First IBM Fellow named:** 1963

**Number of IBM Fellows:** 185

Currently active IBM Fellows: 58

**Number of technical employees:** 195,000

### MICROSOFT RESEARCH

**Established:** 1991

**Purpose:** To create an open, academic model for transferring research to product development.

**Number of labs worldwide:** 6 (Redmond; San

Francisco; Beijing; Cambridge, U.K.; Mountain View, Calif.; Bangalore, India)

**Number of employees:** 700-plus

**Key initiative:** University Relations, to nurture partnerships between the company's research arm and the academic community.

**Grants:** New Faculty Fellowship Grants, US\$200,000 grants to promising young professors, first awarded in 2005.

**Upcoming events:** At the Faculty Summit, in Redmond July 18, Microsoft will announce funding opportunities for financial year 2006.

Source: IBM, Microsoft

ments at Georgia Institute of Technology; Harvard University; Massachusetts Institute of Technology; University of California, Berkeley; and University of North Carolina, Chapel Hill. "Recognizing talent in the early

years is very important," Healy said.

### 'CREAM OF THE CROP'

The IBM Fellows are: Evangelos S. Eleftheriou, honored for his work in noise reduction

around hard disk drive technology; Larry M. Ernst, for software that improves output and image quality of printers; Eduardo Kahan, for his work in service-oriented architecture and Web services; Bradley D. McCredie,

for his design work on the POWER3 and POWER4 processors used in IBM eServers; and Yun Wang, for advances to IBM's DB2 database, enabling it to manage multiple complex queries, quickly.

IBM Fellows are appointed for life, Nunes said, noting that in 42 years the company has named only 185. "They are the cream of the crop, the top technical leaders." A board composed of senior IBM business and technology executives typically singles out three to five fellows per year, narrowing down about 10 nominations, made by the executive senior vice presidents for whom the potential IBM Fellows work. Candidates must possess not only "a sustained record of technical accomplishments," Nunes said, but also the ability to interact

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## 'DON'T GO SERVICES CRAZY'

Eduardo Kahan, IBM

Recently named an IBM Fellow for his work in systems architecture and complex systems integration, Eduardo Kahan is chief architect and CTO of enterprise integration for the company's software group. At IBM for 21 years, he has played a key role in building the company's Global Services business, where he devised the IBM Software Development Method. SD Times talked to Kahan about the challenges of implementing service-oriented architectures on a large scale and where in the SOA adoption cycle most companies stand today.

**SD Times: Based on your work with IBM Global Services, what are the key lessons learned in moving toward a services-based architecture?**

**Eduardo Kahan:** The key message is "don't go services crazy." It's easy to download the tools and create the service. Then, all of a sudden you wake up and say, "How do I manage this stuff, the interface, the versions?" You have to manage WSDL [the Web Services Description Language specification] and all the connections, end points and security. So, the lesson learned is this: Start at the business level and understand your goals for doing SOA. Do you want to play better in your industry, enabling business-to-business communication with vendors? To define services correctly, you have to

define the right granularity at the business level and capture that, in addition to capturing WSDL. You have to determine what is unique to your company, and what [services] you want to get from outside.

**At what stage are enterprise developers today, in terms of implementing SOA?**

There are four levels of adoption, and most companies are at about level two-and-a-half. Level one is simply about implementing individual Web services. Level two is where you inte-

grate the Web services with business processes. Level three is where the transformation begins to occur. Instead of saying, "I am going to build an application," you think in terms of building applications based on the services you have created. You are mature enough to understand the business implications of the technology. Level four is where the real business transformation occurs. You are using UDDI [the Universal Description, Discovery and Integration Web

services registry] to automatically discover Web services and to manage service-level agreements when you do not own big parts of the application.

**What is the IBM Software Development Method?**

It's about how you take thousands of developers and enable them to do distributed software development on a large scale. It came out of my work with IBM Global Services. What artifacts get created? What gets produced? How do they

► continued on page 22



## News Briefs

## COMPANIES

In the wake of **Sun Microsystems'** announcement last month that it was making the full source code to **Solaris** available on OpenSolaris.org, **IBM** and **Red Hat** have launched a new **Solaris-to-Linux** customer migration program. It includes free presales migration assessments from IBM consultants and then an engagement of the **IBM Migration Factory**, a set of professional services. . . . **BZ Media's** second **Software Security Summit** will be held Feb. 6 through Feb. 8, 2006, in San Diego. The conference (www.S-3con.com) focuses on helping developers write more secure software, while also securing the applications they already use. BZ Media publishes SD Times and Software Test & Performance magazine.

## NEW PRODUCTS

Vordel has released a new XML security and processing appliance, the **VS3000**, which filters traffic using the XML Signature, XML Encryption and WS-Security specifications, and which also can apply XML transformations. The rack-mountable device ships with an XML Schema editor, PKI tools and an XPath wizard to select which message elements to sign and encrypt. . . . Absoft is shipping its **High Performance Computing Software Development Kit**



optimized for clusters and servers based on Linux running on 64-bit x86 processors. The HPC SDK includes Fortran and C/C++ compilers from both Intel and Absoft, debuggers, math libraries, prebuilt message passing (MPI) libraries and other development tools. . . . VA Software has released an adapter to make it easier to integrate its **SourceForge Enterprise Edition** with a test team's existing SCM tools. The company also announced a tight integration with the **Perforce** SCM system that offers fine-grained access controls into specific SCM repositories, and GUI administration without leaving the IDE.

## UPGRADES

Version 8.0 of **DOORS**, the requirements management system from Telelogic, includes a new change proposal system for adding new requirements. It also has enhanced audit trail and security features, including new tools for electronic signatures. The company also updated its change and configuration management software: **Synergy/Change 4.4** has an updated look and feel, and **Synergy/CM 6.4** has a new client interface supporting developers, team leaders and configuration managers. Separately, an upgrade of Telelogic's modeler, **Tau G2 2.5**, adds visual test specification and execution using the UML Test Profile, tighter role-based integration with Synergy/CM, and event-triggered tool customization. . . . Autodesk has updated and renamed **ObjectDBX**, its component that lets applications read and write the company's DWG and DXF file formats. Now called **RealDWG 2006**, the software component has improved support for .NET and works with the latest DWG 2004 file format. RealDWG costs US\$5,000 for the initial license, and \$2,500 for annual maintenance. . . . Atomikos has updated **Transactions**, its lightweight Java Transaction Manager implementation. Version 2.1 improves support for Java Message Service, JBoss 4.x and JCA 1.5, and is now preintegrated with Spring, an open-source Java/J2EE application framework. . . . Version 4.0 of **Surround SCM**, a source configuration manager from Seapine Software, includes full Unicode support and WebDAV to provide Web access to files. The upgrade also has a new diff report, an inactive/hidden branch feature, support for case-sensitive file names, tree control on history window, list/tree control for branch maintenance, improved installer and improved SCCI integration. . . . Vale Software has enhanced **MSDE Manager**, a visual tool for administering the free Microsoft SQL Server 2000 Database Engine. The company claims version 4.0 of the US\$79 tool improves the importing and exporting of DTS packages, and adds support for multiple TSQL windows and the use of docking panes to increase the working area. The software can be licensed to bundle with deployed applications that embed MSDE. . . . Microsoft is offering a public beta for its **SQL Server 2005 JDBC Driver**, a new and fully supported



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# JavaOne Features Multitude of Products

BY YVONNE L. LEE

SAN FRANCISCO — Many new and improved tools for developing Java applications made their appearance at Sun Microsystems' JavaOne conference in late June.

The new version of **DataMirror's** PointBase mobile Java relational database supports larger data types and has better query performance, according to the company. It also lets applications exercise more control over the database. DataMirror says support for the larger data types makes it possible to perform more precise calculations. Applications can explicitly lock database tables to reduce deadlocks and wait times.

**Justsystem**, which is known for building the Ichitaro Japanese word processor and the ATOK Japanese language inputting system, introduced an integrated XML editor called xfy, along with two associated development tools.

xfy Basic Edition 1.0 is designed to help developers author and edit complex documents containing diverse XML vocabularies. The beta is available now; the software is scheduled to be released in October. xfy Basic Edition is the core of the xfy suite, designed as the starter set for compound XML document handling.

xfy Basic Edition contains three major components: XML Document Authoring, XML Application Runtime and XML Development Environment. These systems are complemented with two developer tools due later this year: xfy Developer's Toolkit and xfy View Designer. They are designed to extend xfy Basic Edition by creating program elements coded in XML using xfy's extension definition set, called XVCD.

Rich-client software maker **Nexaweb** updated its software platform to add a plug-in architecture that makes it possible to embed third-party components, such as for charting and drawing. Nexaweb 4.0 also added a messaging layer and a distributed XML engine.

**Parasoft** updated both its tool for testing Web services and its Jtest product.

Parasoft changed the name of its SOAPtest Web services testing tool to SOAtest right before JavaOne, according to vice president of corporate development Wayne Ariola.

"Basically, the product supports all XML-based transactions, including those of other SOA protocols, such as EJB, JMS and CORBA," he said. "Any kind of messaging protocol is now being wrapped in services."

The SOAtest 4.0 Web services functional testing tool, which began shipping in early June, now can do penetration testing, which makes it possible to test for security vulnerabilities. The US\$3,995 tool also has new UDDI testing capabilities.

The other updated product, Jtest 7.0, includes a new feature called Test Case Sniffer that builds a test case while testers run an application that Jtest is configured to monitor. Jtest costs \$3,495 per seat. ■

**Seagull Software**, which recently acquired Oak Grove Systems, announced LegaSuite BPM, a J2EE-based business process management system. The offering includes a GUI-based designer for defining process workflows; a runtime engine for executing those workflows and interacting with databases and application servers; an application framework to expose the engine's functions via APIs and Web services; and a browser-based interface for managing and monitoring process activities.

**Tangosol** has updated Coherence, its in-memory caching and data management system for clustered Java server applications. Version 3.0 adds four new features: WAN-based clustering with global load-balancing and failover; clustered JMX (Java Management Extensions) for real-time monitoring of a cluster grid; read-ahead caching to reduce latencies; and custom partitioning and partition affinity, to direct and fine-tune data load balancing within a data grid. While Coherence always has provided automatic data load balancing and lossless failover, the ability to customize the data load balancing is new.

Business integration and process management software provider **TIBCO** announced plans for a deployment platform for service-oriented architectures. The first part of the platform, dubbed Project Matrix, will be a Java business integration service container, which will be due for early access in the first half of 2006. TIBCO also announced that the AJAX Accelerator Program will give customers early access to version 3.0 of General Interface, its rich-client interface. Version 3.0, which is expected later this year, will support the new AJAX specification.

A new open-source Web framework debuted at a JavaOne technical session. The framework, called **Wicket**, is available at wicket.sourceforge.net under the Apache Software License. It is designed to compete against JavaServer Faces, said Miko Matsumura, a vice president of marketing at Infravio, who is leading that effort in a personal capacity.

The framework, which can be used within most development environments, including Borland's JBuilder, Eclipse, Oracle's JDeveloper and Sun's NetBeans, is particularly suited to cases where an application has multiple Struts forms on a single page, he said.

**Windward Studios** demonstrated Windward Reports 4.0. Windward Reports is a J2EE/.NET reporting engine that uses Microsoft Word as a layout tool. It works by merging any combination of XML, SQL or custom data sources with a Microsoft Word report template. It feeds data into the template to create a report that can be generated in PDF, .RTF, HTML, WordML, .XLS, SpreadsheetML, .TXT or multipart-MIME-e-mail format.

The release introduces a suite of advanced report-presentation formats and a new version of its AutoTag Word add-in with a selection wizard, drag-and-drop capability, adding the insert, edit and select tags to the right mouse button menus, and export of template data source settings. ■





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# OMG, BPMI.org Join Forces on Business Process Management

BY DAVID RUBINSTEIN

Object Management Group and BPMI.org announced late last month they are merging their efforts surrounding business process management.

Under the auspices of

OMG, BPMI's board of directors will work with the leaders of OMG's Business Enterprise Integration Domain Task Force to provide education on business process management to the software industry and busi-

ness community.

Among the efforts to be undertaken are advancing the Business Process Modeling Notation and advocating its use, completing and delivering BPMI's Business Process Defi-

nition Metamodel, and furthering work on business information management, EAI, Web services processes and security management, according to an OMG statement.

Business process manage-

ment has garnered increased attention lately as a key linchpin to service-oriented architectures, where the need to orchestrate the invocation of services in composite applications is great. "The merger will allow business analysts, IT architects and developers to accelerate business process integration using a suite of [Model-Driven Architecture] and SOA standards rather than the proprietary implementations promoted by some," said Sridhar Iyengar, IBM Distinguished Engineer and a member of the OMG board of directors, in a statement.

BPMI.org board member Jan Popkin, who is senior vice president of marketing and strategy for Telelogic, noted that the move will further the development of enterprise architectures by tightening the alignment of business process and IT. ■

## Secure Manages Vulnerabilities

BY DAVID RUBINSTEIN

A new management console highlights Secure Software's 2.0 release late last month of its CodeAssure software analysis and development best practices suite.

CodeAssure includes three applications: Workbench, an Eclipse-based code analysis tool; Integrator, which joins the proprietary analysis engine to the build and test environments; and the new Management Center, which provides Web-based visibility into vulnerability assessment across the enterprise, according to director of product management Dale Gardner.

Missing was a promised CodeAssure Auditor, designed to look at binary programs, such as Windows executables, for vulnerabilities. "We kind of backed off Auditor because our customers say [binary analysis] is not a real priority." The new release still will sell for between US\$50,000 and \$100,000 for a typical installation.

The system is based on the company's Comprehensive Lightweight Application Security Process (CLASP), which it describes as a set of best practices that organizations can use to develop software with fewer vulnerabilities, such as buffer overflows or misplaced API calls in an application. ■

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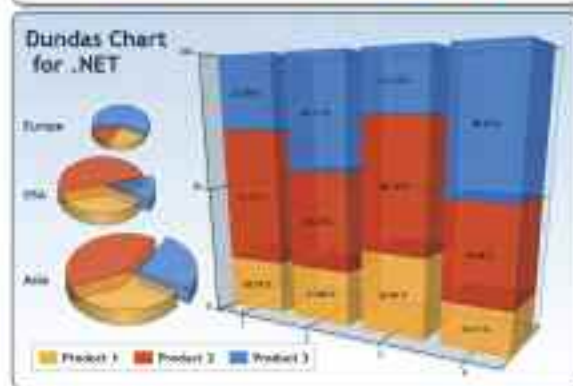
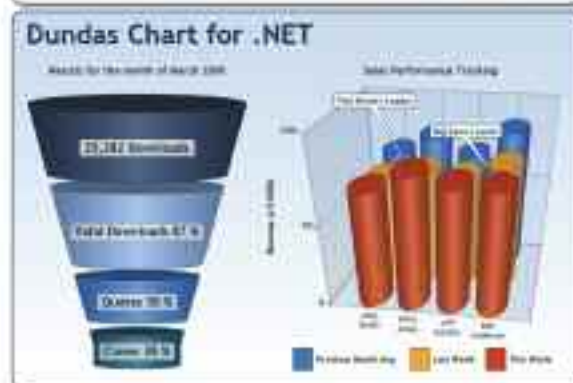
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# SCO to Unify Unix Lines by 2006

## OpenServer 6 shares kernel, scalability features of UnixWare

BY EDWARD J. CORREIA

NEW YORK — The SCO Group plans to bring UnixWare, its data-center Unix distribution, and OpenServer, its entry-level platform, together by 2006. The company announced its plans at Yankee Stadium late last month along with the release of OpenServer 6, the first update in six years to the product that SCO says represents 60 percent of its operating-system sales. The two operating systems are now based on Unix System V Release 5.

According to vice president of engineering Sandy Gupta, SCO sees a future in which, increasingly, “mobile and thin clients are being served by fat servers,” and will tailor its so-called “Fusion” operating system, ultimately 64-bit only, to meet the needs of that scenario.

But even after the two are unified sometime next year, SCO will continue to offer 32-bit operating systems for a period of time, said company spokesman Blake Stowell. “We have customers asking for prior versions of OpenServer and UnixWare, so we’ll continue to offer versions going back two or three years.”

Among the reasons for combining the operating systems, said Stowell, was a blurring of the lines between small and large companies and their computing needs. Pricing for both UnixWare and OpenServer 6 starts at US\$599 per server processor.

OpenServer 6 can allocate as much as 64GB of RAM to special applications and address 16GB directly, increased from 4GB. The operating system also now supports as many as 32 processors; four was the maximum of OpenServer 5.

For developers, among the most significant OpenServer 6 advances, according to Gupta, is multithreaded application support. Also supported are dual-core processors and those designed for wireless, SAN and storage RAID, he said.

### LEVERAGING A LEGEND

Donning a Yankees cap and pinstripes, and with baseball metaphors numbering like a late-inning pitch count, SCO president and CEO Darl McBride announced the general availability of OpenServer 6, known internally as the “Legend” release. He drew guffaws as he

compared the comeback he is hopeful SCO can make to an eighth-inning rally the Yankees enjoyed the night before, in which they scored 13 runs against

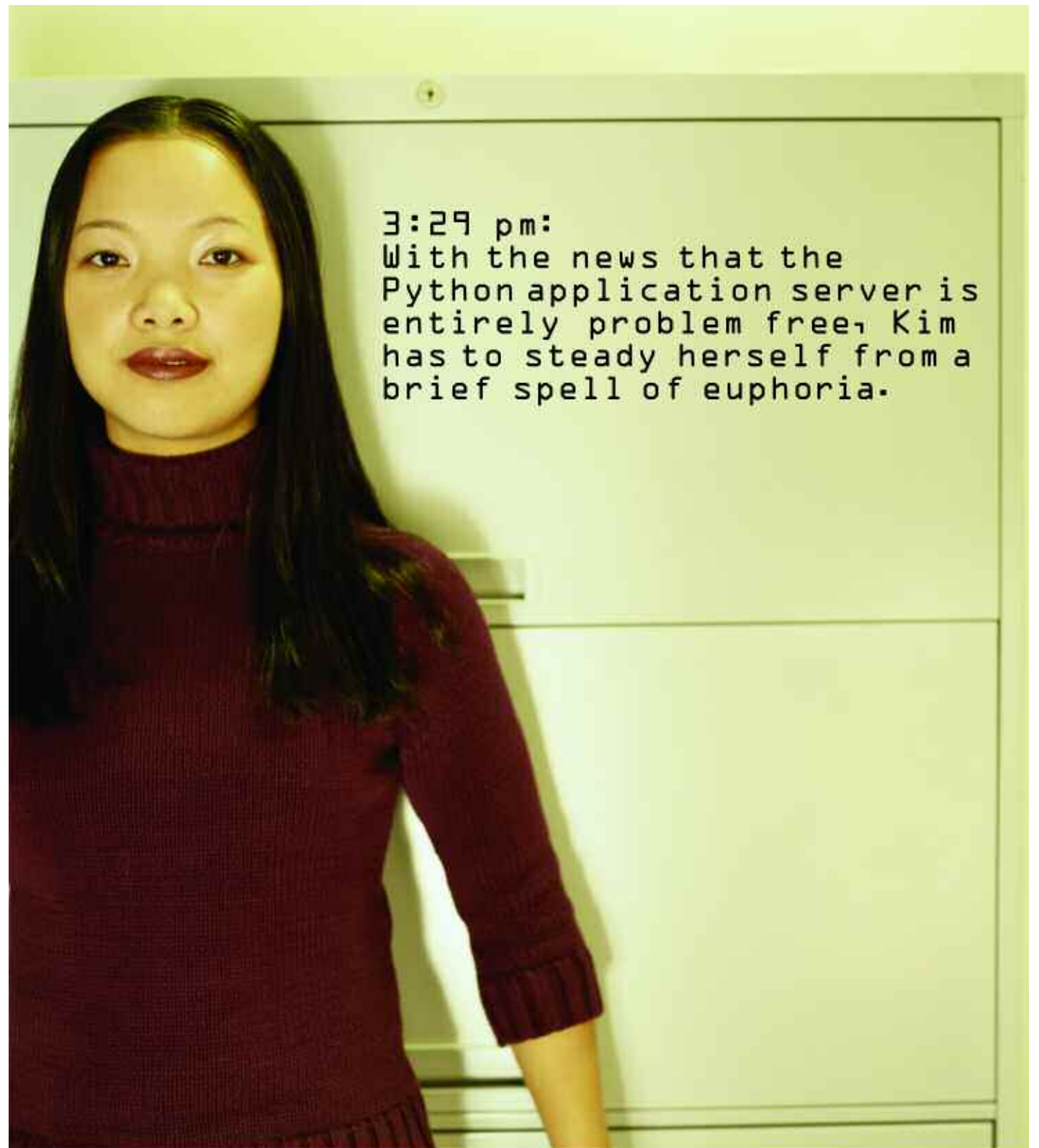
the Tampa Bay Devil Rays. “The Yankees came back, and so can we,” McBride said.

McBride also took a shot at Linux, comparing it to a puppy.

“Linux is free. But it’s like someone offering you a free puppy. That’s a huge responsibility, and if you take it on, that puppy requires care and feeding.” ■



McBride, in pinstripes, said SCO can make a comeback, like the Yankees.



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has to steady herself from a  
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# Cisco Readies Application-Savvy Routers

BY JENNIFER DEJONG

Cisco Systems plans to add application intelligence to its routers.

The San Jose-based company late last month announced Cisco Application-Oriented Networking modules, two "blades" that plug into its data-center switches and branch-office routers, respectively. "The modules enable the network to speak the language of applications, natively understanding whether a message is a purchase order or a stock trade," for example, said Steven Cho, senior director for product management at Cisco's AON business unit. In the past, routers simply "carried bags of bits with headers on them," he said.

The blades make Cisco routers aware of XML and other data types. They also enable the enforcement of policies, such as those pertaining to security or logging, for example. The idea is to "read" traffic in order to route it intelligently, Cho explained. The technology is aimed at IT professionals who administer networks, as well as to application developers, Cho said. "Instead of embedding everything in the application, the developer can take advantage of what's in the blade."

For instance, the blades can save developers from having to keep current on Web services standards, such as WS-Reliable Messaging, WS-Messaging and WS-Eventing. An application still has to "call the operator in the middle," he said. But instead of requesting that a certain function be performed, the blades can apply such policies automatically. The blades are also relevant to business users, who could ask to be notified of stock trades worth more than a million dollars, for example, he said.

The new offerings, expected by year's end, will include software and hardware components. A Catalyst 6500 AON Services Module will fit into a blade slot of the Catalyst 6500 data center switch. A smaller Cisco 2500/2800/3700/3800 Series AON Network Module will fit into Cisco Integrated Services Routers used in branch-office locations. Cisco did not specify pricing. The company also plans a stand-alone, network appliance version of the blades, but details were not made available.

The modules can transform XML and non-XML data, including industry-specific formats, such as Financial Information Exchange (FIX), used in financial services. Through

the use of external parsers that can be plugged in, the blades are expected to support virtually any format. The new offerings provide adapters for commonly used protocols such as

HTTP, as well as messaging middleware standards, such as IBM's WebSphere MQ and WebSphere JMS and TIBCO's Enterprise Message Service. An adapter development kit

will enable creation of additional adapters.

Also central to the new offerings are management tools for specifying policies, such as "All transactions exceeding 10K must be digitally signed" or "For this type of traffic to my SAP server, log it, transform it and send it on," said Cho. ■

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# IBM Releases Information Integration Betas

BY JENNIFER DEJONG

IBM has readied beta versions of every product in its information integration portfolio, including those it acquired from Ascential Software earlier this year.

IBM late last month released beta versions of two new products, which it has discussed earlier: WebSphere Information Analyzer, a data profiling and auditing tool, formerly known as Ascential's Project Hawk; and

Rational Data Architect, which lets development teams model their data sources—IBM DB2, Microsoft SQL Server and Oracle, for example—to show how they relate to one another.

The company also released

betas of former Ascential offerings, including WebSphere DataStage (for integrating data) and QualityStage (for validating, cleansing and matching it).

Betas of IBM's integration offerings, such as search tool

WebSphere OmniFind, were also made available. The OmniFind update will include improvements in semantic understanding, said IBM's vice president of information integration, Nelson Mattos. For instance, it will be able to discern what a user who searches on the word "rock" means. "Rock" could mean "a stone," or "music," or "to move back and forth," he said.

IBM said in May that the offerings from the two companies are expected to remain separate. In the long run, they will share one metadata repository, as well as a single set of connectors, essentially precoded snippets for linking to a range of data sources. In addition, both will be based on Eclipse 3.0.

Updated versions of all of IBM's information integration offerings are expected this year, but the company did not specify pricing or version numbers. ■

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## INFORMATION INTEGRATION

**IBM WebSphere Data Integration Suite:** The data integration platform, formerly from Ascential Software, includes:

- DataStage (collects, integrates and transforms high volumes of data)
- DataStage TX (automates data transformation and intelligent, content-based routing)
- ProfileStage (profiles source data, analyzes column values and structures and provides target database recommendations)
- QualityStage (standardizes, matches and reconciles data from disparate sources)

**IBM WebSphere Information Analyzer:** The forthcoming data profiling and auditing tool, formerly known as Ascential's Project Hawk.

**IBM WebSphere Information Integrator:** IBM's framework for data and content federation includes the following editions:

- OmniFind (for enterprise search)
- Content (which lets disparate content sources appear and act as one system)

**IBM Rational Data Architect:** The forthcoming tool that lets development teams model their data sources to show how they relate to one another).

Source: IBM



# New to Eclipse: OC Systems Testing Tools for C++

BY JENNIFER DEJONG

Eclipse isn't just for Java. But even as the open-source framework matures, tools for C/C++ programmers remain the exception, not the rule.

OC Systems took a small step to change that late last month, delivering a free plug-in that provides tracing and profiling tools for C/C++ applications, said Oliver Cole, president of the Fairfax, Va.-based company. "It's important that coverage tools are available for native code," he said. "Eclipse is very Java-biased."

Hitchhiker (www.ocsystems.com/eclipse) plugs into the Test and Performance Tools Platform (TPTP), formerly known as Hyades, which is built into Eclipse. Based on OC Systems' Aprobe technology,

the plug-in analyzes C/C++ applications for performance problems. It works by inserting commands at the machine-code level and executing them while the application is in process. Hitchhiker

uses the reporting tools that are part of TPTP to show developers which objects and methods consume the most time, and which classes use the most memory, for example. It also locates memory

leaks and identifies active threads.

OC Systems' key offering is RootCause, which "probes" Java applications, as well as those based on compiled languages, for bottlenecks, said Cole.

Hitchhiker is the company's first C/C++ tool for Eclipse. "We looked at TPTP and said, 'There is nothing for C and C++ developers,'" Cole said. "We can take our [technology] and bring something out." ■

## Trolltech Qt Gets Server-Side Support

BY JENNIFER DEJONG

Trolltech is reaching out beyond its GUI roots.

The Oslo, Norway-based company late last month updated Qt, making it easier to connect its cross-platform GUI development tool to back-end databases. Qt 4 automates the process of linking to IBM DB2, Microsoft SQL Server, MySQL and Oracle databases, said Trolltech president Eirik Chambe-Eng.

Also new is support for threading, which lets Qt developers take advantage of multi-core processing technology, and integration with Visual Studio .NET, which lets Microsoft developers writing applications designed to run under operating systems other than Windows use Qt from within their familiar environment.

Qt enables C++ developers to deploy from a single code-base applications that can run natively on Linux, Mac OS X, Unix and Windows, noted Chambe-Eng. "It shields the developer from having to know what is happening with the operating system." Qt 4 also offers improved graphics features, such as the ability to add gradient color effects, he said. ■

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# Registering Updates to UDDI Registry Products

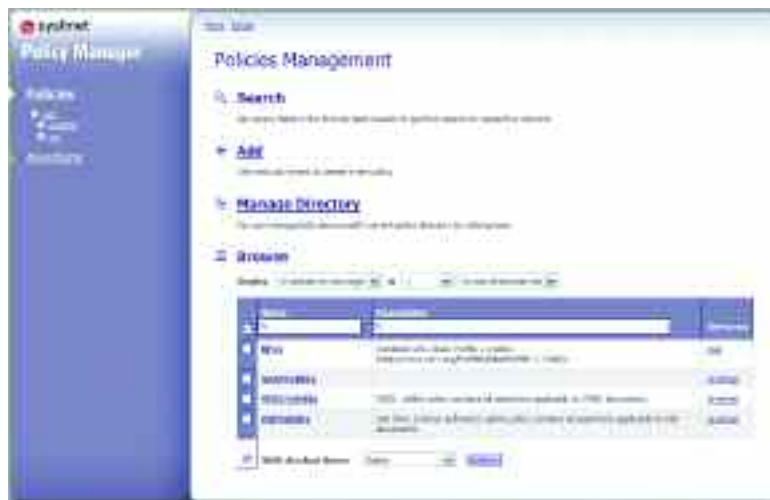
BY YVONNE L. LEE

You can't tell the players without a program.

UDDI registries help programmers and SOA designers in much the same way that programs help fans at a sporting event. They tell developers and applications who owns a service, where the programmatic information is for the service, and what the rules are for who may access the service. Sun Microsystems and Systinet last month announced versions of their UDDI registries, while SOA Software updated a management tool based on its registry.

"You use the [UDDI] registry to describe the metadata, as well as a link to the WSDL," said Luc Clement, senior program manager at Systinet and technical committee chair for OASIS' UDDI specification technical committee. He said the registry also is used to store links to various resources important in a service-oriented architecture.

Sun's Service Registry adheres to both UDDI 3.0 and ebXML, a suite of OASIS specifications that enables organizations to conduct business over



Systinet says policies governing services can be easily associated with those services using Policy Manager.

the Internet. Sun's registry incorporates standards for business processes, core data components, collaboration protocols, messaging, and registries and repositories.

"We believe for true SOA governance, you need more than a UDDI registry," said Ashesh Badani, Sun's group marketing manager for SOA.

"The governance comes from this notion that you need to do metadata management,

[and] be able to set up and manage the life cycle of the Web services," he said.

The registry will not be sold separately, but will be part of the next release of Sun's Java Enterprise System when it ships later this year, Badani said.

Future Java Enterprise System products, such as an access manager, a portal server and administrative tools, will integrate with the registry to govern Web services.

Systinet released a new version of its registry and a policy manager that uses the registry.

New features in Registry 6.0 include a new user interface, implementation of the Governance Interoperability Framework (GIF) and streamlined approval and workflow change notification processes. The console's new interface is configurable and portal-based, with preconfigured user profiles for developers, architects and administrators. The GIF is a collaborative approach for sharing information about services.

The other product, Systinet Policy Manager, helps to create policies governing an SOA, verify them during the approval process, and publish the policies to a UDDI registry.

Systinet Policy Manager 1.0 ships preloaded with a library of policies and assertions that comply with WS-I Basic Profile. Organizations can use the tool to create their custom policies using XQuery, XPath or

Java. Policy Manager checks for the validity of WSDL and XML schema.

Like Systinet's Policy Manager, SOA Software's Service Manager works with a UDDI registry. Service Manager includes a console and a server-based management point.

The console is a dashboard for configuring the services and administering Service Manager itself. The management point delivers security services, including authentication, authorization, auditing, privacy and integrity. It implements service-level agreement monitoring, dynamic load-balancing and reconfiguration.

Service Manager 3.0 was updated for the first time in two years, said Ian Goldsmith, vice president of product marketing. It is available now for US\$5,000 per processor. It includes a UDDI 3.0 registry, and for the first time its interface will use a portal-based dashboard.

"We use the [SOA Software UDDI] registry to decide which services we're going to display information for," said Goldsmith. ■

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Edward Stewart received his Ph.D. in physical ocean science and engineering from the University of Delaware. Ed has experience in many quantitative areas, including quantification and interpretation of statistics and probability; coordination and analysis of large data sets; frequency-domain time-series analysis; ordinary and partial differential equations; finite-difference numerical modeling; nonlinear dynamics; and linear algebra. He has also been a major contributor to the development of new features and algorithms in PV-WAVE and the IMSL Numerical Libraries.

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# Testing Tool Reads WSDL While It Works

## Kenai's ExamineXT creates tests for Web services based on description

BY YVONNE L. LEE

A new product Kenai Systems introduced last month aims to make it easy to test Web services against known security vulnerabilities.

The software works differently than general Web application security products in that it examines the WSDL file and determines a set of tests to perform on the service based on the information contained in the WSDL, said Kenai CTO Jack Quinnell.

According to Quinnell, because the product, ExamineXT, tests elements of the Web services, it requires fewer test objects than other Web application vulnerability test offerings.

This, he said, is because ExamineXT issues tests based on standard information and does not need to know about the internal workings of the application, such as what kind of database is running.

However, if the WSDL indicates something about the data, such as a credit card being requested, it will run a test to make sure only a valid credit-card number is accepted, he said.

It also tests for the ability to inject rogue commands in SQL code and for cross-site scripting, according to CEO Bill Kesselring.

The US\$800-per-seat tool bears a similar name to another product that the company introduced in late March, but is designed to be easier to use than that product, which is called ExamineST.

"You import your WSDL, you select vulnerabilities that have already been defined [in the ExamineXT knowledge base] and press 'Generate,'" said Quinnell.

ExamineXT is scheduled to ship this month with 20 security test profiles, and Kenai says it plans to add new profiles as new vulnerabilities emerge.

### TEST LIBRARY INCLUDED

The company's ExamineST requires security managers to know the parameters to pass to various parts of the Web service, and create tests for those vulnerabilities, Quinnell

said. ExamineXT has a library of tests already created, and can test for compliance with WS-I's Basic Profile and with

OASIS' WS-Security.

ExamineXT can send SOAP messages with attachments, making it possible to create

tests for specified types or sizes of attachments, according to Quinnell. It can use the SSL protocol to identify clients

so testers can verify that only sites with verified certificates are getting through to run a service, he added. The software has a graphical interface for building and viewing security tests.

ExamineXT is available both as a stand-alone tool and as an Eclipse plug-in. ■

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# XML IDE Generates Java Code

## Stylus Studio update also now converts EDI schemas

BY JENNIFER DEJONG

Stylus Studio has updated its XML integrated development environment, adding Java code generation and EDI conversion

capabilities aimed at enterprise developers.

Stylus Studio 6 XML enterprise edition, release 3, announced late last month,

includes XML, XSLT, XQuery and XML schema editors, as well as tools for debugging, mapping and modeling, among others, said the company's

XML product manager, Larry Kim. "Extensible Markup Language is a lot more verbose than conventional programming languages. So the need for produc-

tivity tools is greater."

Earlier versions were aimed at individual developers, but release 3, which starts at US\$995 per user, is Stylus Studio's first offering for solving enterprise integration problems. The new version lets developers design XML mappings, for example, without having to write the Java code to make them work, Kim said. "Stylus Studio generates Java code and deploys it to an application server."

Also new is support for converting schemas based on the Electronic Document Interchange format to XML, as well as support for the working draft of the XQuery 1.0 specification, established by the W3C standards body in April. XQuery, which searches applications for XML code, and XSLT, which transforms the code to other formats, are critical to enterprise data integration, Kim said. ■

## New ClearSight Tool Simulates Network Traffic

BY YVONNE L. LEE

Network analysis company ClearSight Networks has a new product that takes the data from monitoring products, generates more traffic and attempts to predict how an application will perform under that load.

The software product, ClearSight Packet Generator, works with data from the company's Analyzer product, from Network General's Sniffer or from the open-source Ethereal network analyzer.

Matt Holbert, principal technologist at Netco Government Services, a network design and management company serving government agencies, said his company used Packet Generator to capture information from the company's production network, then bring that information to the lab to test how new applications will respond to the existing network. "The ClearSight [Packet Generator] product only generates the traffic. It does not analyze it," he said.

Packet Generator can generate successive packets that have incrementally increasing MAC addresses, IP addresses and application port numbers, simulating network expansion and growth.

The US\$1,995 product works in single packet mode and in buffer mode. ■



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# DBMoto to Allow Apps to Control Data Flow

BY EDWARD J. CORREIA

An upcoming version of DBMoto will allow applications to directly access the replication engine and control the flow of data as it moves from micro- and mainframe-based data sources to other applications. That's according to middleware tools developer Hit Software, which late last month advanced its engine to beta 3 in preparation for launch at the end of this summer.

DBMoto is middleware for Windows servers that replicates data from major back-end databases—including DB2 (for Windows and iSeries), MySQL, Oracle and SQL Server—for use in desktop and Web apps. Version 5 adds support for Gupta, Ingres and PostgreSQL.

Giacomo Lorenzin, Hit's president and CEO, said the engine was previously accessible only through a command prompt. "[Developers] will be able to run replications from their application to better control the flow of data."

Lorenzin said DBMoto 5, now completely rewritten in

C#, also delivers significant performance gains. "We've seen that the C# managed providers are faster than ODBC and OLE DB by as much as 30 percent. And it will be better inte-

grated with applications written in C#." The tool was previously written using a combination of C and Visual Basic, he said.

Hit early this month also released Ritmo 3, the latest ver-

sion of its .NET data provider for iSeries. The US\$249 per-client tool now integrates with Visual Studio .NET. "Visual Studio developers can save time by connecting to the database

[through] the Visual Studio .NET interface without having to issue commands," he said. Ritmo also now integrates with Microsoft's SQL Server Reporting Services, he added, and can now connect to iSeries and include that data in reports. Ritmo starts at \$4,000 per server processor. ■

## Sleepycat: Berkeley DB Twice as Fast

BY EDWARD J. CORREIA

Application-specific database developer Sleepycat Software late last month released Berkeley DB Java Edition 2.0, claiming twice the performance of its predecessor.

The transactional database software also now supports the J2EE Connector Architecture, the Java Transaction API and Java Management Extensions, and reportedly has been certified for Sun's Solaris 10 operating system running on x64 platforms.

According to the company, performance gains were achieved by improvements to memory management and more efficient use of the transaction log, such as minimizing the amount of redundant data. As a result, the company says, applications running out of the cache should experience throughput improvements of at least 30 percent and as much as 70 percent. ■

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# IBM, Microsoft Recognize Researchers

◀ continued from page 7

effectively with business executives in discussions on future technical strategy. "Here's where we are headed; here's what our competitors are doing," she said, characterizing the contributions potential fellows are expected to make. In the early days, they were scientists off in a lab, she said, but today, "we expect them to behave like leaders and executives." Also important is a top-notch reputation among industry peers outside of IBM, she added.

Recipients of Microsoft's 2005 New Faculty Fellowship grants are: Frédo Durand, whose work in computational photography at MIT focuses on the intersection of computer science, math, physics and visual perception; Subhash Khot, whose theoretical computer science work at Georgia Tech focuses on designing efficient algorithms; Dan Klein, who at UC Berkeley is investigating how computers can be used to translate human languages; Radhika Nagpal, whose research at

Harvard concerns how biological approaches can be applied to distributed systems; and Wei Wang, who at UNC-Chapel Hill is examining how three-dimensional imaging technology can be used to discern relationships among proteins.

Microsoft did not say how such projects are likely to impact future projects, nor does it dictate how the grant money must be used. But recipients are likely to spend it hiring

students to assist with research, setting up labs, buying equipment and traveling to conferences, Healy said. They are also likely to maintain an ongoing relationship with Microsoft's research arm, which includes 700 employees worldwide, but the relationship isn't formally structured. "There are no deliverables on their part," he said. "Providing funds gives them the opportunity to take risks."

Microsoft received for its fac-

ulty fellowships 110 applications, from as many universities. Applicants provided statements of their research work and five letters of recommendation, including three from outside of their own universities. Microsoft did not specify the subject areas in which it was interested. A panel of 30 Microsoft researchers selected 20 semifinalists, who were then judged by a second panel that also included high-level Microsoft executives

outside the research group, as well as outside academics.

For the final round, 11 applicants were invited to Microsoft's headquarters to present their work and engage in face-to-face interviews. Some recipients likened the lively debate that ensued to the process of defending their dissertations in order to earn their Ph.D. degrees, Healy said. Nunes noted that prospective IBM Fellows also were subjected to a high degree of scrutiny. "Not one IBM executive is scrutinized as heavily as the [IBM Fellow] honorees." ■

## Kahan: 'Don't Go Services Crazy'

◀ continued from page 7

plug together? We modified and extended RUP [the Rational Unified Process] for SOA development. There's a RUP plug-in for SOA on developerWorks [www.ibm.com/developerworks/rational/library/5823.html].

**Where did the concepts of Web services and SOA originate?**

The buzz around SOA and Web services has been intense. But the concept is not new. [The interoperability standard]

CORBA had the same principles. Web services started around the idea that we had standards and we would be able to play with one another. For applications that were not designed to work together, you have to have any-to-any communication with the right level of security. That's possible only with standards, and SOA starts providing that, a way to deploy apps without having to rewrite point-to-point connections.

**What's ahead for Web services and SOA, beyond what developers are hearing about today?**

One of the areas that will increase in importance is semantic Web services. We're at the point where we can't match Web services at the semantic level. Two services can have the same name, but they are not the same. We will have standards that address this. The hard part is cross-industry semantic Web ser-

vices, where we will automatically discover services without human intervention. Another thing we will see is greater use of software patterns [a way to describe and capture best practices and good designs so they can be reused]. There will be Web services-specific patterns, for things such as how to cache data when a service is requesting a large amount of data from a database.

—Jennifer deJong

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# Cenzic Probes Apps for Holes

BY YVONNE L. LEE

Testing software vendor Cenzic is offering both automated software that tries to penetrate applications through vulnerabilities and a service that does the same thing.

The Windows-based software is called Hailstorm, and according to vice president of marketing Mandeep Khera, it does not assess an application's vulnerability based on examining the code and comparing it to a profile, but uses a dynamic process that attempts to emulate the behavior of a hacker. It first logs in and then types information to various fields and seeks to further penetrate the application depending on the results of each prior penetration attempt, he said.

Cenzic refers to the objects used to penetrate the application as policies. These policies are a set of rules that can act as incursions, or as a test for application logic or compliance with regulatory standards, such as Sarbanes-Oxley.

"We provide the source code for all the attack objects, so

[customers] can produce new attack objects on their own [based on them]," Khera said.

In addition, just as an anti-virus product is updated with the latest virus definitions, Cenzic updates Hailstorm with new objects representing the latest attack definitions.

The latest version of Hailstorm, version 2.5, was released

last month and includes more objects in the library than the previous version, which shipped in March.

In June, the company announced a service under which organizations can pay Cenzic to run the tests. Organizations can pay to have Cenzic perform the service quarterly, semi-annually or annually. ■

## Sun to Buy SeeBeyond

◀ continued from page 1

Martin, Pfizer and Samsung.

SeeBeyond's flagship product is the Integrated Composite Application Network (ICAN) Suite, an all-Java environment for building data-driven applications from existing back-end enterprise systems atop a service-oriented architecture. "This is the first organically written integration platform developed on Java," said SeeBeyond CEO Jim Demetriades. "We look forward to combining the technology in ICAN with the market clout of Sun."

The ICAN Suite includes tools for presentation (JSP), assembly and orchestration (BPEL) and business services (SOAP, WSDL and UDDI) layers. Also included are middleware stacks to handle back-end integration with XML and XSD, data transformation using XSLT, and connectivity and messaging through JCA, JDBC and JMS. Sun in October partnered with SeeBeyond to integrate ICAN with its Java Enterprise System to enable the development of SOA-based applications. ■

## News Briefs

### MORE UPGRADES

◀ continued from page 8

JDBC driver for SQL Server 2000 and SQL Server 2005 . . . Version 2.2 of **Eggplant**, a cross-platform test automation tool for Mac OS X, adds support for Mac OS X 10.4. The tool, from Redstone Software, runs on the Mac but can test software running on other platforms . . . Exadel has updated its US\$99 **Exadel Studio Pro** rapid application development tool by adding a visual JavaServer Pages editor and additional support for the Hibernate object-relational persistence and query service for Java. The software now uses wizards to guide users through creating links between the database and Java objects . . . Version 4.1 of **Allora**, a database middleware tool from Hit Software, improves the product's XML-to-relational integration capabilities. The new version adds a multiple Select feature, which joins and transforms multiple query submaps in real time using XSL . . . Sybase subsidiary iAnywhere Solutions in late June released **Afaria 5.3**, claiming its device management and administration tool now integrates with Microsoft's Systems Management Server 2003. The company said the tool also delivers enhanced configuration and security management and improved patch delivery capabilities.

### PEOPLE

**Joseph Kozak** is the new president of database maker ANTs Software. Kozak, who will report to CEO **Boyd Pearce**, had been VP of industry sales at Oracle; before that, he was CEO of Lombardi Software, which makes business project management solutions . . . **Tom Murphy**, formerly VP of integration and development research at Gartner, has joined Microsoft as group program manager in the Visual Studio Team System group. Before going to Gartner, Murphy was an analyst with Meta Group. ■



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# Sun Embraces Open Source at JavaOne

◀ continued from page 1

was offering its implementation of JSR 1, the spec for Real-Time Java, to hardware manufacturers. Sun also unveiled some additions to its Java development tool set.

During his keynote address, Sun president Jonathan Schwartz initially seemed to disparage the open-source movement. Commenting that he was “touching the third rail” in regard to the issue, Schwartz repeated his oft-stated belief that the important part of what he called the FOSS movement—Free Open-Source Software—is that the software is available at no charge to businesses and consumers, not that the source code is available.

However, this comment, received with stony silence by the estimated crowd of 8,000 at the keynote, was swiftly followed by the announcement

that Sun was immediately releasing the source code to its next-generation app server, formally called the Java System Application Server Platform Edition 9.0, and also to the newly announced Java System Enterprise Service Bus. Both were released under the same Common Development and Distribution License (CDDL) that Sun uses for OpenSolaris. The app-server project had been referred to as Project Glassfish.

John Loiacono, the executive vice president of Sun's software group, said that his goal is to ultimately release all of Sun's infrastructure software under an open-source license, but that it takes a long time to do the due diligence to ensure that it's “safe” to do so while protecting intellectual property. Part of the CDDL license, he said, provides guarantees about the cleanliness of the application code, as well as indemnifications for organizations using it. It takes some effort, he said, to validate these complex apps, and so Sun could not commit to any time frame for releasing more software to the open-source community.

## IBM RE-UPS FOR JAVA

Schwartz admitted that there has been “a bit of a chill in our



Members of Sun's original 'Green Project' team, whose work led to Java, enjoy accolades, above. John Loiacono, left, wants to widen Sun's open-source releases.

At a press conference at JavaOne, Sun CEO Scott McNealy indicated that the negotiations with IBM had been difficult. “It didn't take as long as the initial decision to license Java,” he admitted, but implied that it had taken over a year to work out the details.

What was missing from the announcement was word of any renewed participation by IBM in the Java Community Process or in any of Sun's other initiatives. There are no new JSRs to be started or led by IBM, nor is IBM taking any type of leadership role in the evolution of Java, and its name was conspicuously absent from the Java Business Integration news.

## JAVA BUSINESS INTEGRATION

The most exciting technology news at JavaOne was the completion of JSR 208, the specification for Java Business Integra-

tion. The JBI 1.0 spec, ratified by the JSP shortly before the start of the conference, defines an architecture for application collaboration, in effect a Web services-based service-oriented architecture.

The specification includes a common single-document format for a common service assembly descriptor that defines the routing information and artifacts that define a participant in an SOA—think of JBI as being for an SOA what WSDL is for Web services.

A number of major companies, including Fujitsu, JBoss, Oracle and TIBCO, were vocal in their support of JBI; BEA and IBM weren't part of the festivities—and in fact, both companies, which serve on the Java Community Process board, had abstained from voting on the expert group's approval of the JSR

208 specification.

Along with the JBI 1.0 announcement, Sun unveiled and released the Java System Enterprise Service Bus, which it says is part of the reference implementation for JSR 208. The Java ESB was released at JavaOne as open source under the CDDL license.

At JavaOne, Sun unveiled Java Real-Time System, an extension to Java Standard Edition (Sun has dropped the “2” from the platforms, so it now refers only to Java Standard Edition, Java Enterprise Edition and Java Micro Edition), which extends the language to support real-time components. Real-Time Java, or JSR 1, was approved last year; Java RTS will be licensed to hardware manufacturers on a per-seat basis.

Sun also showed off its work-in-progress on its Java Studio Creator 2 Web application development software, as well as its Java Studio Enterprise suite. Java Studio Creator 2, available as early-access code, includes a new library of JavaServer Faces components, and allows for the creation of Java portlets. It can also consume EJBs.

Sun didn't release bits for the next release of Java Studio Enterprise but demonstrated that it will have new visual features for creating and orchestrating services, and will have a new visual data mapper.

Finally, Sun has updated its Java Web Services Developer Pack. Version 1.6 of Java WSDP adds Fast InfoSet, a binary encoding/decoding utility for XML data. ■

# Jack Kilby, Inventor of Integrated Circuits, Dies at 81

◀ continued from page 1

that built both the first military system and the first computer incorporating integrated circuits. He also played a part in inventing the handheld calculator, one of the myriad devices that are now based on integrated circuits.

## 'A PLEASANT SURPRISE'

In 2000, Kilby was awarded the Nobel Prize in physics for his part in the invention of the integrated circuit.

“Receiving the Nobel Prize in

physics was a completely unexpected, yet very pleasant surprise,” he wrote in his autobiography for the Nobel committee.

“Humankind eventually would have solved the matter, but I had the fortunate experience of being the first person with the right idea and the right resources available at the right time in history,” he said.

Kilby held more than 60 U.S. patents and was awarded numerous honors. In 1970, he received the National Medal of Science, and was inducted into

the National Inventors Hall of Fame in 1982.

In addition, Kilby had an award named for him. The Kilby Foundation honors leaders in science, technology, innovation, invention and education. Computer scientists who are among the 50 Kilby laureates include Tim Berners-Lee, Vinton Cerf, James H. Clark, Linus Torvalds and Steve Wozniak. In 1991, several companies received the award: Apple, EDS, Raytheon, Rockwell International, Tandy and

Texas Instruments.

Kilby was a fellow of the Institute of Electrical and Electronics Engineers and a member of the National Academy of Engineering.

Memorial contributions can be sent to The Jack Kilby Fund in Electrical and Computer Engineering, the University of Illinois Foundation, Harker Hall, 1305 West Green, Urbana, Illinois 61801; or to the Great Bend Foundation (Jack Kilby Statue Fund), P.O. Drawer E, Great Bend, Kansas 67530. ■





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# OSDL to Develop Handset Specs

## Engaged in early talks with France Telecom, CE Linux Forum

BY EDWARD J. CORREIA

OSDL is turning its attention to handsets.

After setting the standard for running Linux in mission-critical systems with its Carrier Grade spec, the Open Source Development Labs will now consider developing specifications that define how Linux should be used in handheld devices, the organization has told SD Times.

"We have a lot of interest from members and others about handsets and other client

devices," said Bill Weinberg, open-source architecture specialist at OSDL. "So we're thinking about those markets and talking to existing organizations about finding ways to work together."

One such organization is France Telecom, which recently launched the Linux Phone Standards (LiPS) Forum, a consortium involving about 20 other companies in an effort to develop handset middleware specifications. "OSDL has been involved in some of the prelim-

inary meetings with LiPS, and at this early stage is currently assessing potential collaboration with that organization," Weinberg said in an e-mail statement.

"Handset standards would be a good next step," said Chris Lanfear, embedded software group manager at research analyst Venture Development. "Next to telecom infrastructure, Linux's next most successful market has been handsets," he said, adding that the move also could open OSDL membership up to a number of new companies or expand membership with some existing customers.

OSDL also is in regular talks, Weinberg said, with the CE Linux Forum, a not-for-profit organization focused on advancing Linux as an open-source platform for consumer



*'Next to telecom infrastructure, Linux's next most successful market has been handsets.'*

—Chris Lanfear, embedded software group manager at Venture Development



*'We have a lot of interest from members and others about handsets and other client devices.'*

—Bill Weinberg, open-source architecture specialist at OSDL

devices. CELF recently began work on the Mobile Phone Profile, which it defines on its Web site as "a broad middleware API and reference implementation that will define how Linux can be used in telephony, devices, multimedia and other aspects common to mobile phones." The Mobile Phone Profile working group is chaired by Motorola, and includes Panasonic and Samsung.

"We have a good rapport with the OSDL, and a lot of overlapping members," said

CELF chairman Scott Smyers. "It's not at all surprising that they're thinking about doing something for handsets. People on my board are going to talk to OSDL and figure out what they're thinking. My sense was that everyone's going to do the right thing," meaning that the work done by the two organizations should be complementary, he said. "Our Mobile Phone Profile group is fairly new, so it's a good time to make sure we're all on the same page." ■

# Reverse Debugging, Hot Plugging

## TI's Code Composer Studio Platinum now covers all platforms

BY EDWARD J. CORREIA

Buy it once, target everything, debug in reverse and disconnect at will.

That's the message from Texas Instruments about Code Composer Studio Platinum, an update to its integrated development environment released this week that it says now targets all TI development platforms. The environment also adds the ability to step through code in reverse, and can recover from target failure without restarting the development host.

Claiming it is the first DSP development environment with reverse debugging, Lori Vidra, Express DSP product marketing manager, said the capability will save developers immeasurable debugging time. "Imagine making a wrong turn in your car and having to go all the way home to start out again," she said. Prior versions forced developers to "start all over when their app went off into the weeds," placing breakpoints where they thought errors might be occurring.



A selective installer now lets developers pick and choose only the components they need, even those from prior editions of the IDE.

"This lets them step backward a line at a time," while monitoring variables and other parameters to spot precisely where problems are.

According to John Stevenson, TI's IDE technology manager, Platinum also now has the ability to remain running when the target board crashes. During a demonstration, Stevenson disconnected a target board from its power supply, which caused its debugging windows on the host PC to turn gray.

"Normally the host system would just freeze up at this point, and you'd be stuck waiting several minutes for it to reboot," he said, adding that any application values that might have been visible would also normally be lost. "[Platinum] freezes all those application values" and resumes when the target is reset or replaced.

"After a problem, developers want to see if it's repeatable," added Vidra of the value of how hot-swap helps avoid the

wait associated with rebooting. "If you've got a known good board, do a hot swap and try again," she said, adding that crashes can happen often during debug sessions.

Making hot-swap possible, Stevenson explained, are abstraction layers between the target board, the TI Blackhawk emulator and the host software. "We've architected

the stack to be resilient to errors that occur," he said, adding that the parallel debug manager also has been enhanced. "Now it gives you a lot more visibility into your [target]."

Vidra explained TI's decision to combine multiple targets into a single package. "In the past, [developers] were focused on a single platform, and you didn't see much migration to others. Now the trend is toward multi-CPU designs," she said, adding that a single solution

also helps reduce costs and simplifies software updates.

Also new is a selective installer, which permits developers to selectively update the environment, installing only certain major components, such as previous compiler versions. "Customers said they usually didn't want to change compilers during a project. Now they don't have to," said Vidra, adding that developers can even select compilers from previous editions. She likened the selective installer's interface to that of Microsoft's Windows component installer.

The Platinum edition is priced at US\$3,600, the cost of either the C5000 or C6000 edition previously. The OMAP edition was priced at \$5,400. And while C2000-series chips are targeted by Platinum, TI also will continue to offer a separate edition for its series of ARM 7, 9 and 11 circuits at the original price of \$495. Platinum comes with 15 months of support.

Also new is CodeWright, which is now the environment's text editor. "We bought the source code from Borland, and we'll be maintaining it moving forward," said Stevenson. Developers can download a full-featured version free for a 120-day evaluation at [www.ti.com/ccstudioplatinumpr](http://www.ti.com/ccstudioplatinumpr). ■



# Green Hills Wins Legal Fight Over VxWorks

Court orders Wind River to honor deal, provide access to its RTOS until 2095

BY EDWARD J. CORREIA

Ninety-nine years is a long time, particularly in an industry in which projects are often measured in months.

On June 20, a California court ordered Wind River Systems to turn over its VxWorks RTOS to Green Hills Software until the year 2095, honoring a

1996 contract that allowed Green Hills to build development and debugging tools. At the time, the companies were not competitors.

But over the ensuing years, Wind River began to build Tornado, its own IDE, and found itself competing with Green Hills for tools business. In

2004, Wind River stopped supplying Green Hills with updates to its operating system and sued to terminate the contract.

They never had a chance, according to Dan O'Dowd, founder and CEO of Green Hills. "It's a very simple agreement. Their claim is that we breached the agreement by competing with them, and by saying negative things about VxWorks," in particular, that the RTOS was royalty-bearing, he said. Green Hills' Integrity is royalty-free.

Wind River's case, O'Dowd said, centered around a claim that in 1996, when the agreement began, the two companies were not competitors. "We became competitors when Wind River developed their own development tools and we developed our own operating system. They said that should have voided the agreement."

That claim held no weight, O'Dowd argued, because the companies have been competitors since 1997. "We've continued to cooperate under the agreement for six years before they decided that competing constituted a breach. That was an incredibly weak case on their part." Wind River executives could not be reached for comment.

O'Dowd believes that Ken Klein, who was named CEO in November 2003, was largely responsible for the sudden reversal. "It seems pretty clear that their policy changed when [Klein] showed up. Previously, they had always cooperated with us and given us new releases. He was fully aware of this decision; there was a conscious management decision to cut off our access to VxWorks," he said.

"Except for the delay, we got everything we wanted," O'Dowd said of the settlement, which also includes a ban on Wind River's claiming to be "the first and only development tools for VxWorks, Linux and proprietary operating systems." Wind River also can no longer call its debugger MultiX Debugger. "Ours is called the Multi Debugger," O'Dowd said. "They have agreed to not use that term anymore, which really grated on us." ■

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# For Linux, the End-to-End

## Native Linux development tools work well for what but true enterprise acceptance will lead to life-cycle

BY ANDREW BINSTOCK

**F**or a community that was built byte by byte through the hard work of programmers, it is surprising that Linux does not occupy a more central position in the world of development tools.

For years, Linux has made do with products that were sufficient but not exceptional. At the center of the development universe were tools like gcc and emacs, which were the favorites of a vocal minority but did not represent the larger state of the art. And during the years of its emergence, commercial tools vendors were greatly skeptical of stepping into the Linux market to provide the better products.

This skepticism was based on the perception that Linux users would not pay for the tools (which certainly had some truth to it). The few hardy vendors that stepped into the market, such as Borland with its Kylix port of Delphi, soon came to regret the move. Even IBM's significant commitment to Linux—a step that did more to legitimize the operating system in the enterprise than any other—did not result in a flood of Linux development tools for the platform.

The commitment came first; the tools showed up much later. In sum, the Linux market was a conundrum for tools vendors that saw an audience waiting for better products but unwilling to support the vendors or write the products they needed.

During the past few years, the composition of the Linux market has changed significantly as the operating system has gone mainstream. The rabid expectation that all tools on Linux should be free has been tempered, and as a result more commercial products are finding their way into Linux developers' toolkits. Likewise, open-source tools have improved significantly.

While this trend augurs a future replete with excellent programming products, the current reality is that the Linux toolchains still suffer from a number of weak links.

### COMPILERS

The history of the modern open-source movement begins with Richard Stallman's two landmarks: his modification of James Gosling's emacs editor and his design and implementation of the gcc compiler. Today, gcc still remains the

default compiler in the Linux toolbox. Its original C and Unix orientation has been broadly expanded so that it now supports numerous languages that have a common heritage in C. It generates binaries for an extraordinarily wide range of execution platforms.

(Actually, "platforms" is a slight overstatement: gcc generates binary code even for Donald Knuth's MMIX virtual machine—a hypothetical platform that appears in Knuth's writings as a machine on which algorithms can execute and their operation can be analyzed.)

While the great strength of gcc is its portability, this protean dimension comes at a distinct cost: Generated code is slow. Optimizations added over the years have improved performance, but the binaries still lack zip.

Until recently, the commercial choices to solve this problem were limited to specialty products, such as the Portland Group (now a part of ST Microelectronics), which sells compilers for parallel programming.

Then, two years ago, Intel ported its C/C++ compiler to Linux. This product, whose front end was redesigned to be compatible with gcc (at the level of command-line switches and binary formats), produces stunningly fast code. It not only performs all the static optimizations, but it adds profile-guided optimization (PGO). This step embeds instrumentation code into the binary.

During the optimization stage, the application is run several times and the instrumentation provides a statistical profile of the execution paths. This profile is then fed back to the compiler, which recompiles the code and optimizes again, this time making the most common execution paths as fast and as short as possible. The result is that just recompiling gcc code with Intel's compiler can result in performance gains of more than 40 percent over gcc binaries.

The GNU project, however, has other interesting compilers it's working on. None of these is more interesting than the GNU compiler for Java (gcj). This tool compiles Java code to binaries rather than the traditional bytecodes. Although the performance report cards on these binaries is mixed, this approach does have the benefit of enabling distribution of applications that do not require the Java runtime environment (JRE), which

also makes programs more difficult for crackers to reverse-engineer.

For gcj to work, though, it required linkable versions of the Java libraries. Two open-source versions exist at present: libcj, which is being merged into the other library, classpath. This summer, the Apache Software Foundation announced it will coordinate a new push to write an open-source set of Java libraries, which when done, will add a third option.

Linux needs more good compilers. And, fortunately, the platform's increased acceptance is attracting products: C# (Mono Project), COBOL (Acucorp, MicroFocus), Fortran (from Intel, Portland Group) and Visual Basic (Real-Basic).

### LIBRARIES

Due to its Unix origins, Linux is an environment that is comfortable using many different libraries. And early Linux history is rife with all sorts of libraries being developed by individuals or small bands of programmers. Many of these, such as the GTK+ graphical toolkit, persist in the GNU collection, while different open-source libraries are maintained under the auspices of other groups.

A number of these libraries have distinguishing features that derive from Unix and that make them an unnatural fit for Windows environments. Ports of these libraries to the Windows platform often look and feel like second-class citizens, and they tend to have specific requirements. Of these, the most common is the need to use the Cygwin library ([www.cygwin.com](http://www.cygwin.com)), which duplicates some of the Unix/Linux functionality on Windows.

Some libraries, though, are designed from the ground up for portability. And these libraries underlie most of the important Linux products today. These include Netscape's Portable Runtime library, written in C; its present rival, the Apache Portable Runtime, which is very much a work in progress; and the ACE Toolkit, which specializes in networking and distributed computing functions.

The most comprehensive and portable library on Linux today is certainly Qt from Trolltech, which started out as GUI toolkit, and is today the basis for Linux's K Desktop Environment (KDE). Qt is a remarkably clean, intelligently designed and elegantly implemented library with portability to Windows and Macintosh

platforms built in. As such, it forms the basis of many commercial Linux tools.

One historical drawback to Qt was its unique dual-licensing model. The library was provided at no charge for free, open-source projects on all platforms except Windows. Projects that were not free and open source, or any project on Windows regardless of status, required payment for a license. Qt 4.0, the latest release, changed this model and removed the Windows exception. Now, any free, open-source project can use the library at no cost. I suspect this will lead to Qt's becoming the de facto library for many Linux-based projects.

### BUILD TOOLS

In days when programs consisted of a few code modules and a handful of resource files, build utilities such as make were sufficient. Linux relied on the open-source gmake during portions of its formative years. However, as packages have become more complex, especially in Java, where each class requires a separate compilation unit, gmake has been forced to give way to more robust tools. Ant is the most widely used of these. It uses an XML-based syntax to specify the sequence of build steps and the action each step requires.

Ant might eventually be supplanted by Maven, an open-source project of the Apache Software Foundation. It is based on Java and uses the concept of plug-ins to provide processing for the different kinds of files and the actions that a build process might require. Tools such as Ant and Maven are driving the build step into a more plenary process that includes running tests, compiling files, validating resources and generating documentation. These actions make the assembly of software products more accurate, more predictable and more scalable.

These tools work in conjunction with source-code management (SCM) products. SCM is an area in which Linux has traditionally shined. The two major open-source products today—CVS and Subversion—derive from work done by Linux enthusiasts to provide better developer collaboration. Both SCM products are in wide use today, although Subversion is slowly but inexorably taking over from CVS. These two tools are complemented by a wide range of commercial products, including IBM Rational ClearCase, Perforce, Seapine's Sur-



# Is Near

## they do, solutions

round SCM, Serena's ChangeMan Version Manager (formerly PVCS), Catalyst's Openmake and a few others.

### IDES

The question of development environments remains a touchy one for Linux hackers because of their long-standing love affair with emacs and its various spin-offs. The original emacs community from Unix days added numerous plug-ins to the environment, some of which were truly useful, others purely whimsical. But all of them added to the lore of the product. And Linux users added even more modules. For some developers, emacs represented an environment they could not foresee ever leaving.

This historically great attachment, however, has been giving way to a new reality imposed by the complexity of modern software. For programmers to be sufficiently productive, pure code tools are no longer enough. As a result, according to surveys done by BZ Research (a division of BZ Media, publisher SD Times), visually oriented IDEs such as Eclipse have been steadily climbing in their adoption among developers to the detriment of text-oriented environments such as emacs.

Several open-source projects offer Linux IDEs today, notably Anjuta and Kdevelop, both of which are polished products. However, Eclipse is emerging as the 800-pound gorilla in the open-source IDEs, especially now that its C/C++ plug-in has improved considerably. While not quite at the same superior level of sophistication as its Java support, the C plug-in and others under development will surely catch up soon. At that point, I believe they will become the de facto IDEs on Linux and Unix.

Other good IDEs, mostly derived from the Java ambit, include IDEA from IntelliJ, Rational Application Developer from IBM, and NetBeans from Sun. Niche IDEs that were built in the Linux community can still be found in specialty areas, such as ActiveState's Komodo environment, which is focused on scripting languages.

### FULL TOOLCHAINS

The Unix genes that influenced Linux run counter to the model of a true end-to-end life-cycle management toolchain. The operating system is more oriented toward

a series of point products that form a mosaic, rather than a smooth set of integrated tools. For this reason, Linux can be very strong in some areas (SCM, for example) and much weaker in others.

Because end-to-end development toolchains don't come naturally to Linux, most of the companies that provide them today are carpetbaggers of a sort that have brought the model to Linux. Their arrival, fittingly, parallels the broader acceptance of Linux in the enterprise.

Today, such toolchains are shipped only by Borland and IBM. Borland's SDO product line is a complete product

chain that is heavily Java-oriented. IBM's Rational products also heavily favor Java, but they do support work in other languages, notably C/C++. The Java orientation is not surprising, however, since Java is the language of the enterprise, which is where heavy, integrated tool sets make the most sense. Interestingly, Linux could not currently assemble point products into a true end-to-end suite because of weaknesses in certain key areas, such as requirements processing and integrated design products. However, the fact that Linux has come this far during the past few years bodes well.

New development products and updates to existing commercial products now routinely include Linux (with the notable exception of those originating from Microsoft). And so, it is fair to expect that within a few years' time, the Linux development market will have many more tools with richer collections of features from which to choose. ■

Andrew Binstock is the principal analyst at Pacific Data Works, and writes the Integration Watch column for SD Times. He can be reached at [abinstock@pacificdataworks.com](mailto:abinstock@pacificdataworks.com).



SD Times Photo Illustration: Mara Leonardi



## EDITORIAL

## Not a Zero-Sum Game

There always has been a contradiction inherent in Sun's role as owner of the Java trademark and chief evangelist for the Java community. On one hand, Sun drives innovation by creating open specifications. On the other, Sun competes as a software developer making money off Java-based infrastructure products.

This contradiction comes to the fore with the perennial debate about Sun's NetBeans project versus the Eclipse Foundation's tools platform consortium. Sun is the only significant member of the Java community that refuses to support Eclipse, preferring instead to pour money and resources into NetBeans, which serves as the codebase for Java Studio Creator and Java Studio Enterprise and is also embedded into other Sun products.

At JavaOne, when asked why Sun continues to support NetBeans almost single-handedly, rather than taking advantage of the large community investing in Eclipse, company president Jonathan Schwartz said that it was to give developers more choices. We agree that choices are important: Competitive diversity leads to investment, innovation and increased value.

However, as SD Times columnist Allen Holub put it in a panel question to Sun's Simon Phipps, Tim Bray and James Gosling, why can't Sun *also* support Eclipse?

All three distinguished Sun technologists gave the identical answer: insufficient resources. There are too few Sun engineers, they said, to split their efforts between Eclipse and NetBeans.

This was a disingenuous answer. Perhaps Sun really has too few engineers to split down the middle, but it doesn't have too few to add value to Eclipse. It's more likely that the real reason is that Sun believes it has a competitive advantage in evolving NetBeans to embed into its own products and projects, but sees little benefit in advancing or endorsing Eclipse.

Why would that be? Perhaps Sun likes having complete control over the direction of NetBeans' evolution and doesn't want to negotiate or collaborate with competitors about features and specifications. Perhaps Sun wants its engineers, who lead most of the JCP expert groups and build most of the reference implementations, to keep their expertise away from its competitors. Perhaps it's about the old religious war between SWT and Swing.

Still, contributing expertise and code back to the Eclipse tooling would help grow the Java industry and ecosystem, and wouldn't take away from NetBeans. It's not a zero-sum game. Why can't Sun offer Eclipse expertise in solving tough Java problems? Why not create Eclipse plug-ins that would speed adoption of new JSRs, make it easier to develop complex J2EE apps, exploit Solaris 10's Dtrace or even help Eclipse developers deploy to Sun's own enterprise platforms? "Insufficient resources" doesn't cut it.

Despite Sun's generally supportive view of open-source software and strong belief in developer tools, it's clear that it won't support a competitive open-source tool chain. However, Sun must realize that Eclipse, not NetBeans, represents the best competitor to Sun's oft-stated "real" competitor, Microsoft, .NET and Visual Studio. By making Eclipse stronger, Sun would make Java stronger. By refusing to strengthen Eclipse, Sun, as chief evangelist for the Java community, is acting against the platform's long-term interests. ■

## Competing on the Basis of Time

In the hotly contested commodity business of assembling computers, Dell enjoys a 50 percent cost advantage over its competitors. This comes from Dell's exceptional responsiveness to customers, flawless operations and remarkable speed of execution. Conventional wisdom once held that the low-cost producer could not provide customized high-quality products. But Dell decided that its customers could have it all—low cost, the latest technology, built to order and delivered in a week.

In the book "Hardball," George Stalk notes that when an industry imposes a compromise on its customers, the company that breaks the compromise stands to gain a significant competitive advantage. For example, the airline industry imposes a big compromise on travelers: If you want low-cost tickets, you have to make your plans early and pay a stiff penalty to change them. Southwest Airlines breaks this compromise: Its customers can apply the cost of unused tickets to a future flight without a change fee.

## BREAKING COMPROMISES

In the software development industry, we impose many compromises on our customers. We tell them that high-quality software takes a lot of time; we ask them to decide exactly what they want when they don't really know; we make it clear that changes late in the development process will be very expensive. There's a significant competitive advantage waiting for companies that can break these compromises. In particular, I'd like to focus on breaking the compromise between quality and speed, because many companies have achieved great leverage by competing on the basis of time.

When I teach classes on Lean Software Development, the first thing we do is draw value stream maps of existing software development processes. Starting with a customer request, the class draws each step that the request goes through as it is turned into deployed software that solves the customer's problem. The aver-

age time for each step is noted, as well as the time between steps, giving a picture of the total time it takes to respond to a customer.

Next the class determines how much of the time between request and deployment is spent actually working on the problem. Typically, less than 20 percent of the total time is spent doing work on the request; for 80 or more percent of the time, the request is waiting in some queue.

But reducing wait time is not the only opportunity for faster software development. Typically the value stream maps in my classes show a big delay just before deployment, at a step that is usually called "verification." Now, I don't have any problem with verification just before deployment, but when I ask, "Do you find any defects during verification?" the answer is always yes. Therein lies the problem.

The way to get rid of the big delay at verification is to move

Mary Poppendieck



Guest View

## Will We Never Learning Curve?

I spent the spring subcontracting on a DirectX game. This was the first time I'd worked on a game since doing some Smartphone work a few years ago, and my first time with DirectX since the late 1990s. Things haven't changed much with DirectX, which still has a learning curve like the front side of a brick.

Like many APIs that were born in the era when C and C++ dominated the programming landscape, DirectX (more particularly, DirectX3D) is utterly useless until you've written a good amount of not-quite-boilerplate code. Then the door opens to a dramatic set of new capabilities. After having so far proceeded inch-by-inch by slogging through megalines of old Usenet postings and documentation, the world suddenly opens up, spins around in 3D and awaits further commands.

The next time you face a challenge, you go to the well that's served you so far and...no luck. Apparently no one's ever needed to do fast collision detection

before. Of course, that's not the case, but it's startling to switch development modes from "find the boilerplate" to "implement algorithms from old SIGGRAPH proceedings."

This approach isn't unique to DirectX3D; it's a style of programming that will feel familiar to those old enough to remember when `main()`s returned an `int` (and took an `int` and a `**char`, thank you very much).

Programming libraries used to concentrate more on providing a broad surface area at a common abstraction level—a bunch of functions relating to math, a bunch of functions relating to manipulating communication ports, etc. Most such libraries would probably be labeled today as "low level," but that's more a reflection of tasks at hand than something inherent to the approach. Certainly, it's difficult to consider a textured and lit

3D scene as the product of a "low level" process.

To be fair, DirectX3D and newer graphics boards offer new "shader languages," which are C-like languages with direct support for manipulating vertices and transforms. However, these languages are neither universally supported nor do they offer access to otherwise unavailable algorithms.

Such libraries reflect a time when programming tasks could demand a certain sacrifice. Even getting your first compile-and-link took dozens of attempts, weaving a web that you speculated would be somewhat, more or less, like what was needed. The profound rush of excitement when link errors suddenly gave way to results was, perhaps, what hooked many of us on programming in the first place.

Modern libraries, APIs and tools have a different emphasis.

Windows &amp; .NET Watch



Larry O'Brien



testing closer to coding. In fact, testing should happen immediately upon coding; if possible the test should have been written before the code. New code should be integrated into the overall system several times a day, with a suite of automated unit tests run each time. Acceptance tests for a feature should pass as soon as the feature is complete, and regression testing should be run on the integrated code daily or perhaps weekly.

Of course, this testing regime is not feasible with manual testing—automated unit and acceptance tests are required. While this may have been impractical a few years ago, the tools exist today to make automated testing practical. Obviously not all tests can be automated and not all automated test suites are fast enough to run frequently. But there are many ways to make automated testing more effective. For example, each layer is usually tested separately—i.e., the business rules are tested below the GUI with most database calls mocked out.

In most of the value stream maps I see in my classes, there is a huge opportunity to move tests far forward in the process and catch defects at their source. Many companies spend a great

deal of time tracking, prioritizing and fixing a long queue of defects. Far better to never let a defect into the queue in the first place.

There is another area of my classes' value stream maps that raises a flag. Toward the beginning of the map there is usually a step called "requirements," which often interacts with a queue of change requests. Dealing with requests takes a lot of time, and approved changes create significant churn.

There has been a feeling that if only we could get the requirements right, this "change churn" would go away. But I generally find that the real problem is that the requirements were specified too early, when it was not really clear what was needed. The way to reduce requirements churn is to delay the detailed clarification of requirements, moving this step much closer to coding. This greatly reduces the change request queue, because you don't need to change a decision that has not yet been made!

Toward the end of my classes, we draw a future value stream map, and invariably the new value stream maps show a dramatically shortened cycle time, the result of eliminating wait time, moving tests forward, and delay-

ing detailed specification of requirements. We usually end up with a process in which cross-functional teams produce small, integrated, tested and deployment-ready packages of software at a regular cadence.

This kind of software development process exposes another compromise: Conventional wisdom says that changes late in the development cycle are costly. If we are developing small bits of code without full knowledge of everything that the system will require, then we are going to have to be able to add new features late in the development process at about the same cost as incorporating them earlier.

The cost of adding or changing features depends on three things: the size of the change, the number of dependencies in the code, and whether or not the change is structural. Since we just agreed to keep development chunks small, let's also agree to keep changes small. Then let's agree that we are going to get the structural stuff right—including proper layering, modularization that fits the domain, appropriate scalability, etc.

We are left to conclude that the cost of nonstructural change depends on the complexity of the code. There are several mea-

surements of complexity, including the number of repetitions (the target is zero), the use of patterns (which reduce complexity) and McCabe scores (the number of decisions in a module). It has been shown that code with low complexity scores has the fewest defects.

#### FIND, FIX DEFECTS EARLY

This brings us back to our testing regime. The most important thing we can do to break the compromises we impose on customers is to move testing forward and put it in line with (or prior to) coding. Build suites of automated unit and acceptance tests, integrate code frequently and run the tests as often as possible. In other words, find and fix the defects before they even count as defects.

Companies that respond to customers a lot faster than their industry average can expect to grow three times faster and enjoy twice the profits of their competitors. ■

*Mary Poppendieck has been in the information technology industry for 25 years. Her book, "Lean Software Development: An Agile Toolkit," was published by Addison-Wesley in May 2003.*

The out-of-box (or, perhaps, the out-of-compressed-download-format experience) and end-to-end applicability is what is lauded. Right now, the two hottest technologies in software development are AJAX and Ruby on Rails.

I've discussed some of the concepts underlying AJAX, the catchy neologism for Web apps written in a combination of Asynchronous JavaScript and XML, in this space before ("Microsoft's Smart Client Move," March 15, page 31). What I failed to appreciate in that column is that the evident enthusiasm for such apps does not come from the idea of creating new AJAX services from whole cloth, but from hacking the work of others. One can now find hacks for Google Maps that overlay geocaches, coffee shops and even prostitution arrests (insert Convention Bureau of San Francisco joke here).

Ruby on Rails is an open-source application framework for developing Web applications. What's interesting to me is that the Ruby programming language has been around for some time now, and while it's been general-

ly admired, it hasn't been overwhelmingly popular.

Combined with Rails, though, the out-of-box ability to create a Web site is startling, reminiscent of one's first experience with a Wiki, but where the strength of a Wiki is the ease with which humans can create pages and content, the strength of Rails is the ease with which Ruby code can create pages and content.

Like other tools labeled "application frameworks" as opposed to "libraries," Rails doesn't provide a broad foundation for new types of work; it provides scaffolding that shortens the time to develop initial functionality and offers architectural guidance for further development. It took the Rails application framework to put Ruby on the map.

The quality of a tool seems no longer judged by the breadth of its capabilities but on its time-to-Hello-World. In fact, of course, the ultimate productivity of a tool is related to its behavior not in the first days of a project but over the entire life cycle of the application.

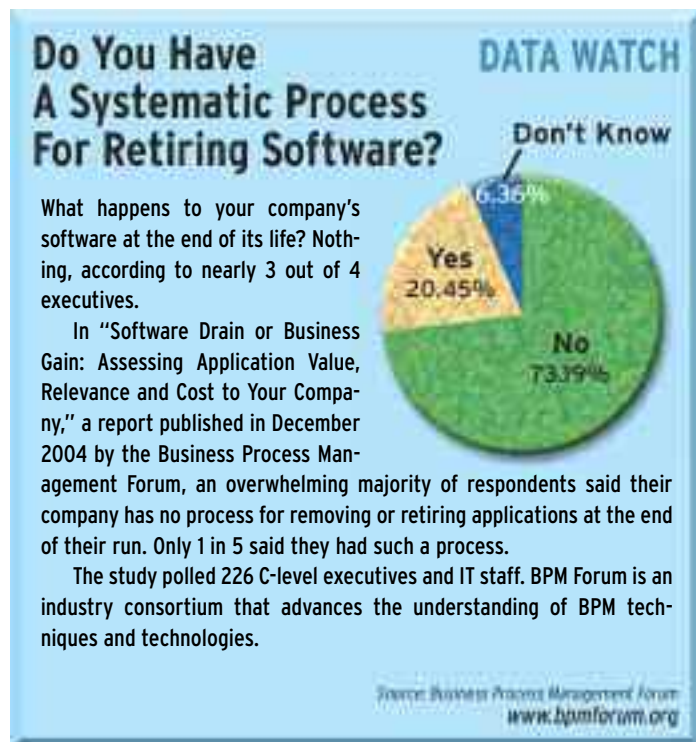
It seems to me, the productiv-

ity in the last 20 percent of a release cycle is more important than the productivity in the first 20 percent. During the final part of a release cycle, when all the libraries are familiar, the architecture is set for better or worse, and the battle is no longer the main thrust of the application but the myriad exceptions and

uncommon paths, what makes the productivity difference is the expressiveness of the underlying language and the ease with which one can refactor the source code.

Some things never change. ■

*Larry O'Brien is a technology consultant, analyst and writer. Read his blog at [www.knowing.net](http://www.knowing.net).*



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# Snapple! Macs Break With Tradition

In early June, Apple announced a stunning development: It was forsaking the PowerPC processor in favor of—gasp!—Intel chips. The move, which was shocking primarily because it flew in the face of years of anti-Intel rhetoric from Apple, will have repercussions in many sectors of the hardware and software industries. One of the few places it will have no appreciable effect is at IBM. Let's look at how this could shake out and what it might mean for developers.

First, the easy one: IBM. Big Blue does not much care about losing Apple's business. Steve Jobs has always had the reputation as a difficult customer, and the volume of chips he generated for IBM's chip-making plants was pretty small. As we recall, only months earlier, IBM dumped its own PC product line on China-based Lenovo, because Armonk had no desire to compete in a low-profit business that was a drag on earnings.

Apple represented a similar kind of arrangement—a big hassle with no great revenue potential. And providing Macs with processors could not be leveraged: It did not help Big Blue sell any of its own products. So, IBM's notable lack of public concern for losing Apple was authentic. Its contracts earlier this year to supply the chips for all new game consoles undoubtedly reinforced this insouciance.

However, IBM does have something

to worry about. The Power architecture, especially in the Power 4 and the current Power 5 generations, has been characterized by remarkable innovation. The Power 5 chip has simultaneous multi-threading (the equivalent of Intel's Hyper-Threading Technology), multiple cores, 64-bit capacity and—hold onto your hats—36MB of cache. A four-chip module has a whopping 144MB of cache.

In addition, it has special instructions for monitoring memory (so as to move OS thread management down to the hardware level) and other innovative instructions that are flat-out built for speed.

There's just one problem: The resulting Power 5 chip is a decent but unexceptional performer. And it generates a heckuva lot of heat. If all that innovation cannot deliver the performance pledged to Apple or minimize power consumption—what is the point?

Now let's look at the new market for x86 operating systems. An ISV that I spoke with this week said he thought Apple's move would be bad for Linux. His thinking was that the Intel version of Mac OS would give sites an alternative non-Windows operating system. I disagree; I think Mac OS x86 will have little effect on Windows or Linux.

The right analogy, I believe, is Solaris x86, an operating system that's certainly more attractive than Windows and definitely more reliable. Yet it has failed to take root except in specialty niches. The reason is that there is no compelling motivation to change to an operating system that runs significantly fewer software applications than Windows—a dynamic that's sure to play out with Mac OS x86. Linux, in some ways, is better situated in this respect. First of all, of course, it's free. Second, its software base is increasing, and it has a thriving community of developers who continually rev the operating system and innovate new tools.

Within the enterprise, Linux is achieving critical mass, due in large part to its constant promotion by IBM. You'll agree that neither IBM nor any other major vendor is likely to help Apple sell Macs (even though the Mac used IBM's own processor). And while Apple's servers have received accolades, as we know, they went nowhere. One could argue this too was due to IBM's problems delivering fast chips. But then IBM's own success with the Power 5-based server chips would be hard to explain.

## Integration Watch



Andrew Binstock

Yes, Mac OS x86 could actually help push Linux on the desktop, but this unlikely scenario would arise from the Mac's potential to encourage wider acceptance of non-Windows operating systems on x86 boxes.

My personal belief is that Mac OS x86 will be no big deal. Apple's current market share will eventually migrate from Power 5 to x86 but stay on the Mac platform. People who don't use Macs now probably won't adopt them because of the new processor. Likewise, most Macintosh fanatics are unlikely to stray from the fold. The chip will change, but most everything else will stay about the same. And personally, I think this is exactly what Apple is praying for.

A final postscript: Apple's choice of Intel highlights a key difference between Intel and AMD. All things being equal, AMD's processors would have been a better fit with Apple's rebel underdog image. But AMD doesn't offer the power-saving features of Intel's Pentium M processor that Apple desperately needed for its notebooks. The Pentium M, which drives Intel's Centrino platform, reflects Intel's continued focus on clients and desktops, while AMD's innovations appear first in its server offerings: the Opteron chips. And for this reason, Apple works with Intel, while Sun partners with AMD. ■

*Andrew Binstock is the principal analyst at Pacific Data Works.*

## Visual Java

I recently stumbled across JSR 273, "Design-Time API for JavaBeans," on the jcp.org site. This is a new Java Specification Request that was originally contemplated for Mustang (J2SE 6), but which will probably be released after Mustang ships next year. The point of this JSR is to extend the JavaBeans 1.01 spec to make it easier to integrate a JavaBean-compliant component that you write into a design-time container. (I'm talking primarily about visual components that appear in a user interface and are manipulated by a design-time Visual Basic-like layout tool; these sorts of beans have nothing to do with EJBs, for example.)

The main reason I find this JSR interesting is that the original JavaBeans specification was responsible for introducing the getter/setter idiom to Java, an idiom that's fundamentally at odds with the object-oriented principle of implementation hiding. The result is that there are a lot of procedural programs written in Java by people who think that they're programming in an object-oriented way. Overuse of getter/setter functions causes serious maintenance problems, and can obviate most of the advantages of OO systems.

Interestingly, the original JavaBeans

spec didn't mandate that you use a getter/setter idiom. The point of the idiom was to tag certain attributes of an object for inclusion in a tool-generated property sheet. That is, if you provided `getFoo()` and `setFoo()` methods, then a design-time tool would include a Foo property in the property sheet for that component. The spec provides for a much more object-oriented way of doing the same thing: A BeanCustomizer could create an arbitrary property sheet for a component, thereby rendering the getter/setter functions unnecessary.

The problem was that nobody understood how to build a customizer. The specification itself was responsible for this problem. The section on customizers was both sketchy and much harder to understand than the rest of the document. More to the point, the spec included no discussion of why you might want to use a customizer. The net result is that nobody did use them, and as a consequence a lot of bad code has been written.

One solution to this problem would have been to introduce a new keyword

to Java (such as `@property`), which could be used syntactically like an access privilege such as `private`. This way you could declare a private field that was marked as a property so that the design-time tool could do its thing and construct the property sheet for you. At the time, Sun was adamantly opposed to the notion of introducing new keywords to

Java, though the new metadata feature of Java 5 effectively does exactly that.

With JSR 273, we now have the opportunity to replace a troublesome idiom that never should have been introduced with a more maintainable (and object-oriented) alternative. To do that, however, the JSR development process needs to be completely transparent (in the sense of the programmer community being able to monitor the expert group's work). That is, the new specification (and the expert group that's producing it) has to educate the community as to why a new way of doing things is better than public get/set functions, and the best way to do this is to publish the discussion that results in the final API set.

## Java Watch



Allen Holub

I'm also not convinced that the expert group will know enough about OO principals to fix the problem of a procedural idiom corrupting otherwise object-oriented code. Certainly, other expert groups have compounded the problem by using the same getter/setter idiom as JavaBeans, and I have to believe that the experts wouldn't have done so if they understood the underlying issues.

Finally, I'm worried that the spec will be written as opaquely as the original, and that the IDE companies will use the new mechanisms for their own components, but nobody else will. If the spec is poorly written, and at the same time allows the use of getter/setter methods, people will do the latter.

Unfortunately, JSR 273 shows all the signs of being completely opaque. The JSR Web page ([jcp.org/en/jsr/detail?id=273](http://jcp.org/en/jsr/detail?id=273)) lists no Web site or mailing list for this project. You can nominate yourself for the expert group from a link on the JSR Web page, but that's the only obvious way to get involved at present. Nonetheless, if you feel strongly about these issues, I recommend that you get involved. You can write the project lead (Sun's Joe Nuxoll) at [joe.nuxoll@sun.com](mailto:joe.nuxoll@sun.com). ■

*Allen Holub is an architect, consultant and instructor in C/C++, Java and OO Design. Reach him at [www.holub.com](http://www.holub.com).*



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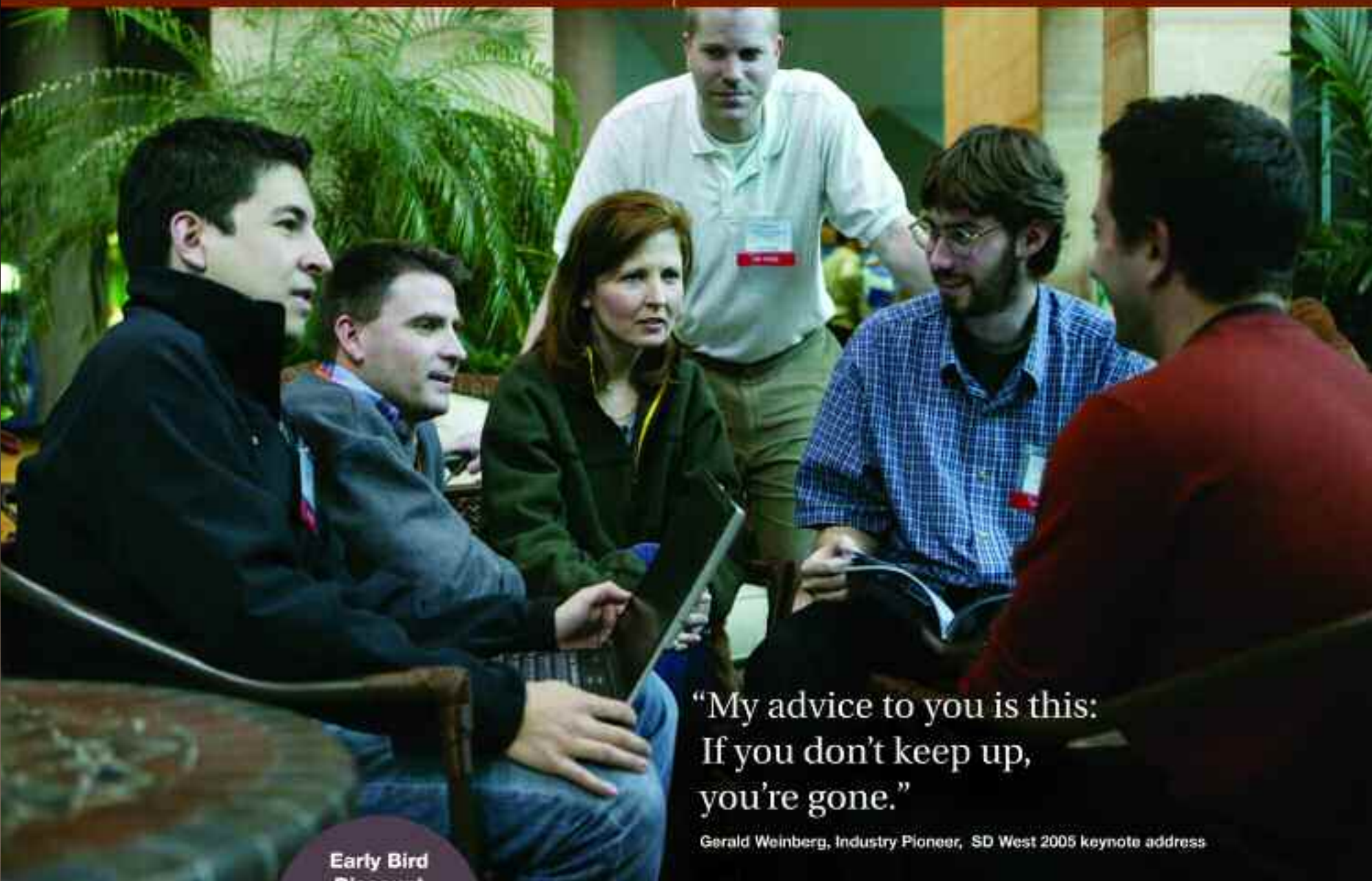


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# Out of the Margins

Reporters, due to the very nature of the news business, speak to many people in the course of a day or month or year. As I was looking through my notes this week while completing a story, I found a couple of nuggets of interest to share in this space.

**Now It Makes Sense.** New technology ideas are put forth with amazing frequency. Some are adopted right away, while others are dismissed. Still others are generally acknowledged as good ideas but don't have a compelling enough story to gain widespread approval right away. Then, another technology comes along and provides the *raison d'être* for the earlier one.

Such is the case with agile software development. When the first books on the subject came out, people said the notion of iterative development, with disciplined coding, frequent testing and frequent builds, was a good one. But development shops were resistant to throwing out their old methods, even if they weren't as efficient as the proponents of agile said their methods are.

Along came service-oriented architectures. This idea laid out a notion of loosely coupled applications built from components or services that could be revised, tested and rolled out quickly to help a business react to a new opportunity or a change in their market. But what good was an SOA if companies still had nine-month development cycles of gathering requirements, writing code, testing, certifying that dependencies weren't broken and then releasing? That implies agility, and indeed SOA has helped breathe new

life into agile methodologies by helping organizations create their software much more rapidly, and with fewer problems.

SOAs can be most useful in helping organizations ship software on time, but they do not, in the words of Rally Software's Richard Leavitt, change the heartbeat of an organization. "It's about

## Industry Watch



David Rubinstein

how you manage your project, your coding and testing cycle, to get full ROI from SOA," he said.

**Turning the Offshore Tide.** We keep hearing about American programmers losing their jobs as companies look to the East (Asia, that is) to find workers willing to do the same job for much less money. And

we've also heard about some pushback when companies ended up with software that didn't meet the requirements, or about projects that failed due to communication barriers that were impossible to overcome.

This week, I heard from Lighthouse Technologies, a Dayton, Ohio-based software development shop that outbid an India-based counterpart for work for the U.K. financial services company Collin Stewart. How'd they do it?

Lighthouse president Jeff Van Fleet said productivity is the key. "Over the last several years, we've been hiring experienced senior managers from large local firms, and taking the best of their knowledge to create best practices for maximizing productivity."

Van Fleet said that Lighthouse drives productivity by using tools and algorithms it created to predict the number of defects that will be injected

into a project in each phase of development. The company strives to automate as much as possible under its continuous integration model, which helps development teams find defects that result from the interaction of two pieces of code created by different developers. Bugs are found the day they are introduced, reducing time and cost to remediate. All this means developers are spending more time advancing the project and less time chasing down defects.

The company also tries to create ever-shortening schedules for delivering exactly what is needed, ending up with what it calls a quality-driven development methodology.

Van Fleet said his company is trying to move the market from a per-hour pay schedule by offering a fixed price per function point, which he said is something that is well understood in Europe. "The job [cost] is driven by the size the customer needs. They don't care what we pay guys on an hourly basis. So the higher we drive productivity, the more profitable and more competitive we can be."

If his company exceeds the number of defects it predicts, or delivers the project late, those are costs it must eat. "We have an on-time, on-money, on-quality guarantee," he said. "Value-based selling is the way to go. You just can't quantify the difference in work from an \$80-an-hour guy as opposed to a \$50-an-hour guy."

He noted another area of advantage. "In construction, coding and testing [offshore firms] can deliver as good as we can. The difficulty comes in design and cultural differences."

These are the factors Van Fleet believes could help U.S. companies turn the tide of offshoring. ■

David Rubinstein is editor of SD Times.

## BUSINESS BRIEFS

**PalmSource** late last month announced it was laying off about 16 percent of its full-time employees in the U.S. in a cost-cutting move designed to save roughly US\$6 million in fiscal year 2006. The company said more than half of the layoffs will be in middle and senior management, including three senior vice presidents. "We are...aligning our cost structure with the reality that we are in a new product development period," PalmSource CFO Jeanne Seeley said in a statement. The company is moving toward Linux-based platforms. Meanwhile, PalmSource reported revenue of \$71.9 million for fiscal year 2005, down from \$73.1 million from a year earlier. Net income was \$19.5 million compared with a net loss of \$15.2 million in fiscal 2004. Palm OS licensees reported shipping roughly 1.1 million units during the fourth quarter, of which 37 percent were smartphones and 63 percent were PDAs and other mobile handheld devices. This compares with about 1.4 million units shipped in the fourth quarter of fiscal 2004, of which 18 percent were smartphones and 82 percent were PDAs and other devices. ■ **IBM** said it will spend US\$140 million to create a Core Systems Transformation solution for the financial services industry to better leverage assets in legacy core banking systems in service-oriented architectures. The company said CST will help banks streamline business processes and aid in compliance with gov-

ernment regulations. ■ **Computer Associates** is considering adopting CA as its formal name, to distance itself from the accounting scandal of the recent past that brought down CEO Sanjay Kumar and resulted in criminal charges against several top officers. The company will spend US\$7 million on an advertising campaign "to change the conversations and perception of CA," chief marketing officer Don Friedman said in a statement. ■ **Embedded Linux solution provider TimeSys** closed a US\$6 million round of funding, led by **Adams Capital Management**. The company sells Linux Customization Solutions, components and systems that help developers customize Linux for the unique requirements of their embedded devices.

**EARNINGS:** For its fiscal second quarter ended May 29, **TIBCO Software** announced revenue of US\$101.4 million and GAAP net income of \$21.7 million, or 10 cents per fully diluted share. ■ **NEON Systems** reported fiscal year 2005 revenue of \$17.6 million, an increase of 14 percent from the \$15.4 million reported in fiscal year 2004. The company posted a net loss for the year of \$631,000, or 7 cents per share, compared with a loss of \$98,000, or 1 cent per share, in the prior year. In 2004, NEON purchased mainframe integration software companies **ClientSoft** and **InnerAccess Technologies**. ■

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<b>Agile 2005 Conference</b> Denver AGILE ALLIANCE www.agile2005.org	July 24-29
<b>SIGGRAPH</b> Los Angeles ACM SIGGRAPH www.siggraph.org/s2005	July 31-Aug. 4
<b>Open Source Convention</b> Portland, Ore. O'REILLY MEDIA conferences.oreillynet.com	Aug. 1-5
<b>SCO Forum</b> Las Vegas THE SCO GROUP www.sco.com/2005forum	Aug. 7-9
<b>LinuxWorld Conference &amp; Expo</b> San Francisco IDG WORLD EXPO www.linuxworldexpo.com/live/12	Aug. 8-11
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